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Ontario - Legislative Assembly

SESSIONAL PAPERS.

VOL. XXV.—PART IV.

THIRD SESSION OF SEVENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

30518

SESSION 1893.

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1893.

LIST OF SESSIONAL PAPERS.

ARRANGED ALPHABETICALLY.

TITLE.	No.	REMARKS.
Accounts (*Dominion and the Provinces*)	65	*Printed.*
Accounts, Public	14	"
Agricultural and Arts, Report	11	"
Agricultural College, Report	22	"
Agricultural Societies, Analysis	60	*Not printed.*
Anatomy, Inspector, Bodies received by	71	*Printed.*
Asylums, Report	8	"
Baxter, Judge, commutation	33	*Not printed.*
Bee-Keepers' Association, Report	83	*Printed.*
Births, Marriages and Deaths, Report	5	"
Blind Institute, Report	6	"
Bonds and Securities	53	*Not printed.*
Canadian Institute, Report	23	*Printed.*
Cattle, Dehorning, Report	2	"
Central Farmers' Institute, Report	84	"
Cholera regulations	66	"
Colonization Roads and Bridges	78	"
Crown Lands Report	17	"
Dairymen's and Creameries', Report	16	*Printed.*
Deaf and Dumb Institute, Report	7	"
Dehorning Cattle, Report	2	"
Division Courts, Report	26	"
Drainage Commission, Report	32	"
Duffern License Commissioners, correspondence	91	*Not printed.*
Education, Report	3	*Printed.*
" publication of Text-Books, O. in C	42	*Not printed.*
" publication of French Grammar	43	"
" lecturers at School of Pedagogy	44	"
" Goderich High School	45	"
" Niagara Falls High School	46	"
" Toronto Junction High School	47	"
" Inspector of Model Schools, duties of	48	"
" County pupils attending High Schools	52	*Printed.*
" appointment, resignations and dismissals	54	"
" names of authors and publishers of text-books	55	"
Elections, Returns	75	"
Elgin House of Industry, Report	39	*Not printed.*
Entomological Society, Report	12	*Printed.*
Estimates	15	"

Title.	No.	Remarks.
Factories Inspectors, Report	25	*Printed.*
Farmers' Institute, Central, Report	84	"
Fire Ranging, expenditure	41	"
Fish and Game, Report	76	"
Forest Reservation and National Park, Report	31	"
Forestry, Forest Schools Management, Report	30	"
Fruit Growers', Report	13	"
Game and Fish, Report	76	*Printed.*
Gaols, Prisons and Reformatories, Report	9	"
Government Roads	78	"
Health, Report	28	*Printed.*
" regulations *re* cholera	66	"
" regulations *re* ice supply	67	"
Hospitals, Report	38	"
Houses of Refuge, Report	10	"
Ice, regulations *re* supply and storage	67	*Printed.*
Immigration, Report	18	"
Industries, Bureau of, Report	20	"
Insurance, Report	4	"
Jenkinson, W. T., application for license	77	*Not printed.*
Jones *vs.* Sharpe, correspondence	63	"
Judicature Act, commutation	33	"
Judicature Act "	34	"
Kirkpatrick, Lieutenant-Governor	57	*Printed.*
Lands sold, amounts due on	68	*Printed.*
Legal Offices, Report	27	"
Librarian, Report	37	*Not printed.*
Lieutenant-Governor, appointment	57	*Printed.*
Liquor Licenses, Report	19	"
" number issued	49	"
" convictions in N. Ontario	88	*Not printed.*
Magdalen Asylums, Report	10	*Printed.*
Manley, conduct of	51	*Not printed.*
Medical Council, sums paid to members	86	*Printed.*
Middlesex Registry Office, vacancies in	58	*Not printed.*
Mines, Report of Bureau	85	*Printed.*
Mosgrove, Judge, commutation	34	*Not printed.*
Municipal indebtedness	89	*Printed.*
Municipal Taxation, Report	73	"
Municipal Treasurers, defalcations	79	"
Orphan Asylums, Report	10	*Printed.*
Ottawa Separate Schools, correspondence	50	"
Paget and Regan, correspondence	63	*Not printed.*
Pedagogy, lecturers	44	"
Pedgaogy, appointments and dismissals	54	*Printed.*

Title.	No.	Remarks.
Plebiscite Petitions	93	*Printed*
Poultry and Pet Stock, Report	82	"
Prisons, Report	9	"
Proton Commissioner	64	*Not printed.*
Public Accounts	14	*Printed.*
Public Works, Report	24	"
Queen Victoria Niagara Falls Park, Report	69	*Printed.*
Railway Documents	59	*Printed.*
Refuge, Houses of, Report	10	"
Registrars' fees	81	"
Roads and Bridge expenditure	78	"
Scott Act By-laws	87	*Not printed.*
Secretary and Registrar, Report	90	*Printed.*
Statutes, Revised, disposal of	35	*Not printed.*
Statutes, Sessional, disposal of	36	"
Tavern and Shop Licenses, Report	19	*Printed.*
Text Books, publication	55	"
Timber berths, offered for sale in 1892	62	"
Timber berths, purchasers in 1890	74	"
Timber sales from 1871	92	"
Timber, estimated quantity	72	"
Titles, Report of Master	61	"
Toronto General Trusts Company	56	*Not printed.*
Toronto Normal School, appointments, etc.	54	*Printed.*
Toronto University, Report	70	"
" Faculty of Medicine	1	"
" Finance Report	21	"
Upper Canada College, Report	29	*Printed.*
York Branch River Bridge	80	*Not printed.*
York House of Industry, Report	40	"

LIST OF SESSIONAL PAPERS.

Arranged in Numerical Order with their Titles at full length ; the dates when Ordered and when presented to the Legislature ; the name of the Member who moved the same, and whether Ordered to be Printed or not.

CONTENTS OF PART I.

No. 1.. Report of the Standing Committee on the Faculty of Medicine, University of Toronto, on the subject of Re-organization. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 2.. Report of the Commissioners appointed to enquire into the practice of Dehorning Cattle. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 3.. Report of the Minister of Education for the year 1892, with Statistics of 1891, in which is included the Reports upon the Scientific Institutions and School of Practical Science. Presented to the Legislature, 5th April, 1893. (*Printed.*)

CONTENTS OF PART II.

No. 4.. Report of the Inspector of Insurance and Registrar of Friendly Societies for the year 1892. Presented to the Legislature, 5th April, 1893. (*Printed.*)

No. 5.. Report relating to the Registration of Births, Marriages and Deaths for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

CONTENTS OF PART III.

No. 6.. Report upon the Ontario Institution for the education and instruction of the Blind, Brantford, for the year ending 30th September, 1892. Presented to the Legislature, 5th April, 1893. (*Printed.*)

No. 7.. Report upon the Ontario Institution for the education of the Deaf and Dumb, Belleville, for the year ending 30th September, 1892. Presented to the Legislature, 5th April, 1893. (*Printed.*)

No. 8.. Report upon the Lunatic and Idiot Asylums of the Province for the year ending 30th September, 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 9.. Report upon the Common Gaols, Prisons and Reformatories, for the year ending 30th September, 1892. Presented to the Legislature, 5th April, 1893. (*Printed.*)

No. 10.. Report upon the Houses of Refuge and Orphan and Magdalen Asylums for the year ending 30th September, 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 11.. Report of the Agriculture and Arts Association for the year 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

CONTENTS OF PART IV.

No. 12.. Report of the Entomological Society for the year 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 13.. Report of the Fruit Growers' Association for the year 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 14.. Public Accounts of the Province for the year 1892. Presented to the Legislature, 5th April, 1893. (*Printed.*)

No. 15.. Estimates for the service of the Province until the Estimates of the year are finally passed. Presented to the Legislature, 5th April, 1893. (*Not printed.*) Estimates for the year 1893. Presented to the Legislature, 5th April, 1893. (*Printed.*) Estimates required for the service of the Province until the Estimates for the year are finally passed. Presented to the Legislature, 1st May, 1893. (*Not printed.*) Estimates (supplementary) for the year 1893. Presented to the Legislature, 25th May, 1893. (*Printed.*)

CONTENTS OF PART V.

No. 16.. Report of the Dairymen's and Creameries' Associations of the Province for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 17.. Report of the Commissioner of Crown Lands for the year 1892. Presented to the Legislature, 18th April, 1893. (*Printed.*)

No. 18.. Report of the Department of Immigration for the year 1892. Presented to the Legislature, 5th May, 1893. (*Printed*)

No. 19.. Report upon the working of the Tavern and Shop Licenses Act for the year 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

CONTENTS OF PART VI.

No. 20.. Report of the Bureau of Industries for the year 1892. Presented to the Legislature, 12th May, 1893. (*Printed.*)

No. 21.. Report of the Standing Committee on Finance, University of Toronto. Presented to the Legislature, 10th April, 1893. (*Printed.*)

No. 22.. Report of the Ontario Agricultural College and Experimental Farm for the year 1892. Presented to the Legislature, 10th April, 1893. (*Printed.*)

CONTENTS OF PART VII.

No. 23 . Report for the Canadian Institute for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 24.. Report of the Commissioner of Public Works for the year 1892. Presented to the Legislature, 12th April, 1893. (*Printed.*)

No. 25.. Reports of the Inspectors of Factories of the Province for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 26.. Report of the Inspector of Division Courts for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 27.. Report of the Inspector of Legal Offices for the year 1892. Presented to the Legislature, 2nd May, 1893. (*Printed.*)

No. 28.. Report of the Provincial Board of Health for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 29.. Report of Upper Canada College for the year ending 30th June, 1892. Presented to the Legislature, 6th April, 1893. (*Printed.*)

No. 30.. Papers and Reports upon Forestry, Forest Schools, Administration and Management. Presented to the Legislature, 20th April, 1893. (*Printed.*)

CONTENTS OF PART VIII.

No. 31.. Report of the Royal Commission on Forest Reservation and National Park. Presented to the Legislature, 20th April, 1893. (*Printed.*)

No. 32.. Report of the Drainage Commission for the Province, 1892-3. Presented to the Legislature, 4th May, 1893. (*Printed.*)

No. 33.. Copy of an Order in Council commuting the fees payable to His Honour Judge Baxter, under the Surrogate Courts Act. Presented to the Legislature, 5th April, 1893. (*Not printed.*)

No. 34.. Copy of an Order in Council respecting the payment of Surrogate Court fees to His Honour, Judge Mosgrove. Presented to the Legislature, 5th April, 1893. (*Not printed.*)

No. 35.. Statement as to the disposal of the Revised Statutes for the year 1892. Presented to the Legislature, 5th April, 1893. (*Not printed.*)

No. 36.. Statement as to the disposal of the Sessional Statutes for the year 1892. Presented to the Legislature, 5th April, 1893. (*Not printed.*)

No. 37.. Report of the Librarian on the state of the Library. Presented to the Legislature, 6th April, 1893. (*Not printed.*)

No. 38.. Report upon the Hospitals of the Province for the year ending 30th September, 1892. Presented to the Legislature, 14th April, 1893. (*Printed.*)

No. 39.. Report of the House of Industry and Refuge, County of Elgin. Presented to the Legislature, 10th April, 1893. (*Not printed.*)

No. 40.. Report on the House of Industry, County of York. Presented to the Legislature, 10th April, 1893. (*Not printed.*)

No. 41.. Return to an Order of the House, of the sixth day of April, 1892, shewing the expenditure in each year, since the system of fire ranging has been established for that service, the amount of refunds in each year, and the amount remaining unpaid on account of the licensee's share of the expenditure. Presented to the Legislature, 10th April, 1893. Mr. *Meredith.* (*Printed.*)

No. 42.. Copy of an Order-in-Council approving of certain agreements in regard to publication of Text Books. Presented to the Legislature, 11th April, 1893. (*Not printed.*)

No. 43.. Copy of an Order-in-Council respecting a certain indenture of agreement in regard to the publication of the High School French Grammar. Presented to the Legislature, 11th April, 1893. (*Not printed.*)

No. 44.. Copy of an Order-in-Council respecting the appointment of Lecturers at the School of Pedagogy for the Session of 1892-93. Presented to the Legislature, 11th April, 1893. (*Not printed.*)

No. 45.. Copy of an Order-inCouncil raising the High School at Goderich to the status of a Collegiate Institute. Presented to the Legislature, 11th April, 1893. (*Not printed.*)

No. 46.. Copy of an Order-in-Council relating to the establishment of a High School at Niagara Falls. Presented to the Legislature, 11th, April, 1893. (*Not printed.*)

No. 47.. Copy of an Order-in-Council respecting the establishment of a High School at Toronto Junction. Presented to the Legislature, 11th April, 1893. (*Not printed.*)

No. 48.. Copy of an Order-in-Council respecting the performance, during his absence through illness, of certain of the duties of the Inspector of Model Schools. Presented to the Legislature, 11th April, 1893. (*Not printed.*)

No. 49.. Return to an Order of the House of the seventeenth day of March, 1892, for a Return shewing the number of liquor licenses issued in each year from 1876 to 1891, both inclusive. The gross fund raised from licenses in each of the same years. The sums paid out of the said fund in each of the same years to the Province and the Municipalities respectively, and the sums the Municipalities have imposed by by-law over and above the Statutory Duties in each of the same years. Presented to the Legislature, 12th April, 1893. Mr. *Clancy.* (*Printed.*)

No. 50.. Return to an Order of the House of the twenty-third day of March, 1892, for a Return of copies of all correspondence between Mr. Inspector White and the Board of Separate School Trustees of the City of Ottawa, together with copies of all reports made by the Inspector to the said Board, with reference to the Separate Schools of the City, during the year 1891. Presented to the Legislature, 12th April, 1893. Mr. *Whitney.* (*Printed.*)

No. 51.. Return to an Order of the House of the twenty-fifth day of March, 1892, for a Return of copies of all correspondence between the Minister of Education, Sir Daniel Wilson, and one Manley, late caretaker or janitor of the School of Practical Science, or any other person or persons, relating to the conduct of said Manley while janitor, and his dismissal from said position. Presented to the Legislature, 12th April, 1893. Mr. *Whitney.* (*Not printed.*)

No. 52.. Return to an Order of the House of the eleventh day of April, 1892, for a Return shewing the number of County pupils attending High Schools or Collegiate Institutes in Towns separated from Counties for Municipal purposes, for each of the past three years ending 30th June; the amounts paid by said Counties to the said High Schools and Collegiate Institutes

for the same period; the amounts paid by said Counties to the said High Schools and Collegiate Institutes under the High Schools Act of 1891. Presented to the Legislature, 12th April, 1893. Mr. *Preston.* (*Printed.*)

No. 53.. Statement of Bonds and Securities registered by Officers of the Province during the year 1892 Presented to the Legislature, 14th April, 1893. (*Not printed.*)

No. 54.. Return to an Order of the House of the twenty-fifth day of March, 1892, for a Return giving the names of all persons who have been appointed to, who have resigned and been dismissed from positions in the Toronto Normal School, the Toronto Model School and the School of Pedagogy, within the last five years, together with copies, in each case, of all correspondence relating to the same between the Minister of Education or any member of the Government, or any officer of the Department of Education and the parties in question, or any other person or persons. Also, copies of all petitions, memorials and communications addressed to the Minister of Education, or any member of the Government, on the part of any, or all of the students of the Toronto Normal School, the Toronto Model School and the School of Pedagogy, within the last five years, and of any replies thereto on the Department of Education or the Government. Presented to the Legislature, 14th April, 1893. Mr. *Whitney.* (*Printed.*)

No. 55 . Return to an Order of the House of the fourth day of April, 1892, for a Return shewing the names of all authors and publishers of Public and High School text-books, with the respective books published by them and the prices thereof. Also, for the copies of all correspondence by or with the Minister of Education, or any officer of his department, respecting the price or publication of Public or High School text-books, subsequent to that already brought down. Presented to the Legislature, 14th April, 1893. Mr. *Kerns.* (*Printed.*)

No. 56.. Report of the Toronto General Trusts Company for the year 1892. Presented to the Legislature, 17th April, 1893. (*Not printed.*)

No. 57.. Copy of Commission appointing the Honourable George Airey Kirkpatrick, P.C., to be Lieutenant-Governor of the Province of Ontario, and of the instructions thereto attached. Presented to the Legislature, 20th April, 1893. (*Printed.*)

No. 58.. Return to an Order of the House of the tenth day of April, 1893, for a Return shewing how often, in the past ten years, the office of Registrar of Deeds for the North and East Ridings of the County of Middlesex has become vacant; the dates when the vacancies occurred and when they were filled, and, if the office is now vacant, how long the vacancy has continued. Presented to the Legislature, 20th April, 1893. Mr. *Meredith.* (*Not printed.*)

No. 59.. Papers and Documents relating to the Kingston, Napanee and Western Railway Company, the Ottawa, Arnprior and Parry Sound Railway Company, the Irondale, Bancroft and Ottawa Railway Company, and the Central Counties Railway Company. Presented to the Legislature, 25th May, 1893. (*Printed.*)

No. 60.. Analysis of Reports of Electoral District and Township Agricultural and Horticultural Societies in Ontario for the year 1892. Presented to the Legislature, 21st April, 1893. (*Not printed.*)

No. 61.. Report of the Master of Titles for the year 1892. Presented to the Legislature, 21st April. 1893. (*Printed*)

No. 62.. Return to an Address to His Honour the Lieutenant-Governor of the 12th day of April, 1893, praying that he will cause to be laid before this House a Return of the timber berths offered for sale at the sale of 13th October, 1892, and of the births then sold, including those sold by private contract after the auction sale, with the area of each berth, the price *per* square mile paid, the names of the several purchasers, the sums received on account of purchase money, the date of the payment thereof and the sums (if any) remaining unpaid on the 1st January, 1893, and shewing whether any, and if so which of the said berths had been previously sold, and when and to whom and for what price, and also for a return of a copy of the advertisement and conditions of sale, and of the Order-in-Council authorizing the sale. Presented to the Legislature, 24th April, 1893. Mr. *Whitney.* (*Printed.*)

No. 63.. Return to an Order of the House of the 4th day of April, 1892, for a Return of copies of all correspondence between the Commissioner of Crown Lands, or any officer of the Department of Crown Lands and George Paget and John Regan, or either of them, on the subject of, or with reference to an action in the High Court of Justice, Queen's Bench Division, between F. J. Jones plaintiff, and James Sharpe, Peter McDermott, George Paget and John Regan defendants, which said action was tried, or partially tried, before the Honourable Mr. Justice Rose at Hamilton, on the 2nd day of October, 1890, and settled by the parties thereto. Giving also, copies of all correspondence between the said Commissioner, or any such officer, and any other person or persons on the subject of or with reference to, the said action. Presented to the Legislature, 24th April, 1893. Mr. *Whitney.* (*Not printed.*)

No. 64.. Return to an Address to His Honour the Lieutenant-Governor of the first day of April, 1892, praying that he will cause to be laid before this House a copy of the Order-in-Council for the appointment of a Commissioner to examine into the claims of the Township of Proton in respect of the Land Improvement Fund, of the Commission used in pursuance thereof, and for a statement in detail of all expenses incurred in respect of the enquiry and report. Presented to the Legislature, 25th April, 1893. Mr. *Meredtth.* (*Not printed.*)

No. 65... Copy of an Order-in-Council adopting the first agreement of submission to the Arbitrators appointed for the settlement of the accounts between the Government of the Dominion of Canada and the Governments of the Provinces of Ontario and Quebec, and as between the said Provinces of Ontario and Quebec. Presented to the Legislature, 26th April, 1893. (*Printed.*)

No. 66.. Regulations of the Provincial Board of Health, with respect to Cholera, approved by Order-in-Council, dated 11th April, 1893. Presented to the Legislature, 26th April, 1893. (*Printed.*)

No. 67.. Copy of an Order-in-Council approving of the Regulations respecting the sources of supply and the place of storage of Ice intended for domestic use or cooling purposes, adopted by the Provincial Board of Health. Presented to the Legislature, 26th April, 1893. (*Printed.*)

No. 68.. Return in part, to an Order of the House of the eleventh day of April, 1892, for a Return shewing by Townships the amount remaining unpaid on the

31st December last on lands sold, of (1) Crown Lands, (2) Common School Lands, (3) Grammar School Lands, (4) Railway Lands, and the aggregate amount due in respect of each of the said classes of lands, distinguishing the amounts due for principal and interest respectively. Presented to the Legislature, 26th April, 1893. Mr. *Meredith.* (*Printed*)

No. 69.. Report of the Commissioners for the Queen Victoria Niagara Falls Park. Presented to the Legislature, 28th April, 1893. (*Printed.*)

CONTENTS OF PART IX.

No. 70.. Report of the University of Toronto for the year 1891-92, including the Reports of the University and College Councils, together with the Bursar's statement for the year 1892. Presented to the Legislature, 17th May, 1893. (*Printed.*)

No. 71.. Return to an Order of the House of the eleventh day of April, 1892, for a Return shewing the number of bodies received by the Inspector of Anatomy, during each of the past five years from (1) Charitable Institutions (2) Criminal Institutions and (3) all other sources in the Province. Shewing also, the number of persons who have died from natural causes in each of the above named institutions during the same period, and the number of the criminal class who had spent ten years or more in prison before dying in prison, and the number of persons who during the same period have died at the hands of the executioner. Presented to the Legislature, 1st May, 1893. Mr. *Meacham.* (*Printed.*)

No. 72.. Return to an Order of the House of the ninth day of March, 1892, for a Return, shewing the estimated quantity of Pine Timber now standing upon the Crown domain of the Province and the estimated value thereof, setting the same forth as far as practicable by a description, by number or otherwise, of the berths upon which the same is standing, and where the territory has not been divided into timber berths, shewing the localities as far as practicable, and also shewing the data upon which such estimates are based, as far as practicable. Presented to the Legislature, 1st May, 1893. Mr. *Wood* (*Hastings*) (*Printed*)

No. 73.. Report of the Commission on Municipal Taxation. Presented to the Legislature, 5th May, 1893. (*Printed.*)

No. 74.. Return to an Address to His Honour the Lieutenant-Governor of the twelfth day of April, 1893, praying that he will cause to be laid before this House a Return of the names of the several purchasers of the timber berths disposed of at the sale of October, 1890, and of the sales, if any, which were not carried out, and of the amounts, if any, remaining unpaid on account of the purchase money, if any, of such of lots and of a copy of the Order in Council authorizing the sale and of the advertisement and conditions of sale. Presented to the Legislature, 4th May, 1893. Mr. *Campbell* (*Algoma.*) (*Printed.*)

No. 75.. Return from the Records of the several Elections to the Legislative Assembly, in the Electoral District of the City of Toronto, of the County of Peel, and the City of Toronto, since the General Election of 1890, shewing:— (1) The number of votes polled for each candidate in each Electoral District in which there was a contest. (2) The majority whereby each successful candidate was returned. (3). The total number of votes polled in each District. (4) The number of votes remaining unpolled. (5) The

number of names on the Voters' List in each District. (6) The population of each District as shewn by the last census. Presented to the Legislature, 22nd May, 1893. (*Printed.*)

No. 76.. Report of the Ontario Game and Fish Commission. Presented to the Legislature, 11th May, 1893. (*Printed.*)

No. 77.. Return to an Order of the House of the third day of May, 1893, for a Return of copies of all correspondence between the License Inspector of North Brant, or other parties, and the License Department, of any member of the Government, in connection with the application of William T. Jenkinson for a tavern license in polling sub division No. 10, Brantford Township. Presented to the Legislature, 8th May, 1893. (Mr. *McCleary.*) (*Not printed.*)

No. 78.. Return to an Order of the House of the nineteenth day of April, 1893, for a Return shewing, separately for each County, the expenditure on colonization, Government, or County Roads and Bridges, by the Crown Lands Department, in the Counties of Victoria, Peterborough, Hastings, Addington and Frontenac during the year 1892, with the location and amount expended on each road and bridge, and giving the name of the overseer in charge, and the amount received by such overseer, for his own services out of each expenditure. Presented to the Legislature, 8th May, 1893. Mr. *Wood* (*Hastings*) (*Printed.*)

No. 79.. Return to an Order of the House of the twenty-third day of March, 1892, for a Return shewing amounts of defalcations made by the Treasurers of any of the Municipalities in the Province of Ontario during the years 1871 to 1891, both inclusive. Shewing also, the amounts any of said municipalities have lost during the same time for want of sufficient sureties being given by said Treasurers, and also shewing the number of Commissions of Enquiry into the finances of municipal corporations issued during said years under Section 383 of the Municipal Act. Presented to the Legislature, 9th May, 1893. Mr. *Balfour.* (*Printed.*)

No. 80.. Return to an order of the House of the nineteenth day of April, 1893, for a Return of copies of all correspondence in connection with an application for a new Bridge over York Branch River, between lots 20 and 21, in the Township of Carlow, in the County of Hastings, during the year 1892, and all papers or memoranda connected therewith. Presented to the Legislature, 10th May, 1893. Mr. *Wood* (*Hastings.*) (*Not printed.*)

No. 81.. Returns of all Fees and Emoluments received by the Registrars of Ontario for the year 1892, under the provisions of R.S.O. 1887. cap. 114, sec. 100, with which are contrasted receipts of the same nature in the years 1890 and 1891. Presented to the Legislature, 12th May, 1893. (*Printed.*)

No. 82.. Reports of the Poultry and Pet Stock Associations for the year 1892. Presented to the Legislature, 12th May, 1893. (*Printed.*)

No. 83.. Report of the Bee-Keepers Association for the year 1892. Presented to the Legislature, 12th May, 1891. (*Printed.*)

No. 84.. Report of the Central Farmers' Institute for the year 1892. Presented to the Legislature, 12th May, 1893. (*Printed.*)

No. 85.. Report of the Bureau of Industries for the year 1892. Presented to the Legislature, 12th May, 1893. (*Printed.*)

No. 86.. Return to an Order of the House of the fifth day of May, 1893, for a Return from the Treasurer of the Medical Council, giving a detailed statement of the sums paid to each member of the Medical Council during the past five years, for travelling expenses and hotel accommodation while attending Council and Committee meetings, and also of the details of the amount not down in the financial returns for 1890, 1891 and 1892, under the heading "Expenses of Legislation." Presented to the Legislature, 12th May, 1893. Mr. *Waters.* (*Printed.*)

No. 87.. Return to an Order of the House of the 10th day of May, 1893, for a Return shewing the number of votes polled in favor of, and against, the Scott Act By-laws when last carried in the different Counties and Cities of this Province. Also, the number of votes polled when the same Counties or Cities repealed such By-laws, and including the vote in those Counties and Cities where the By-laws, under this Act, did not pass. Presented to the Legislature, 16th May, 1893. Mr. *Gibson* (*Huron.*) (*Not printed.*)

No. 88.. Return to an Order of the House of the tenth day of May, 1893, for a Return of all convictions under the Liquor License Act in the Riding of North Ontario during the years 1891 and 1892. Also, of all moneys paid to the License Inspector for salary and expenses during said years, distinguishing the amounts paid for salary and the amounts paid for expenses. Also, of the particulars of any fines which may have been remitted during said years. Also, of the gross amounts of money received by the inspector in his official capacity during said two years, and a detailed statement of the amounts disbursed by him during the same time, shewing to whom and for what such disbursements were made. Presented to the Legislature, 16th May, 1893. Mr. *Glendinning.* (*Not printed.*)

No. 89.. Statement of the amounts loaned to the Municipalities of the Province under the Tile, Stone and Timber Act from 1st January, 1890, to 31st December, 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 90.. Report of the Secretary and Registrar of the Province for the year 1892. Presented to the Legislature, 19th May, 1893. (*Printed.*)

No. 91.. Return to an Order of the House of the fifth day of May, 1893, for a Return of copies of all correspondence between the Government and the License Commissioners of the County of Dufferin, or any other parties, concerning the resignation of the late License Inspector for the County, Mr. Anderson. Also, for copies of all correspondence between the Government and the said License Commissioners, or other parties, concerning the appointment of the present Inspector, Mr. Dodds. Presented to the Legislature, 19th May, 1893. Mr. *Barr* (*Dufferin.*) (*Not printed.*)

No. 92.. Return to an Order of the House of the twenty-fourth day of April, 1893, for a Return giving, except that already brought down, the dates of all Crown Timber Sales from 1871, as follows: The date of sale, the number and extent of the different timber berths in square miles, and the prices obtained at each such sale, *per* square mile. Presented to the Legislature, 22nd May, 1893. Mr. *Preston.* (*Printed.*)

No. 93..	Return to an Order of the House of the nineteenth day of May, 1893, for a Return shewing the number of petitions that have been presented to the House during the present Sessi n asking for a plebiscite on the temperance question from temperance societies, churches and municipal corporations, giving the numbers from each in the order named. Also, shewing the nnmbers fr:m each of the above-named bodies in favor of Provincial or other Prohibition, respectively. And the number of Petitions in favor of Bill (No. 70,) To prohibit the sale of intoxicating liquors by retail. Presented to the Legislature, 23rd May, 1893. Mr. *Field.* (*Printed.*)

TWENTY-THIRD ANNUAL REPORT

OF THE

ENTOMOLOGICAL SOCIETY

OF

ONTARIO

1892.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

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1893.

INDEX.

	Page.
Agricultural Entomology, Text-book of	83
Agrotis herilis	8
" jaculifera	8
" tricosa	8
" ypsilon	8
Amblycorypha oblongifolia	68
" rotundifolia	68
" scudderæ	68
Amblyscirtes samoset	31
Anaxypha exigua	67
Anisopteryx vernata	7
Annual Address of President	7
" Meeting, Association of Economic Entomologists	39
Annual Meeting Entomological Society of Ontario	3
Anthomyia brassicæ	9
Apple, Insects affecting the	43, 44, 45, 46, 47, 48
Arcyptera gracilis	76
Argynnis Atlantis	32
" Freya	30
" Montinus	32
Arphia sulphurea	76
Arsenites in the orchard	82
Aspidisea splendoriferella	47
Bean weevil	39
Bermuda, Insects of	21
Bethune, Rev. C. J. S., Articles by	5, 7, 83, 86, 87
Book notices	83
Bootettix argentatus	76
Botanical Section, Report of	16
Bucculatrix pomifoliella	48
Butterflies, Manual of North American	87
" of Compton, P.Q.	28
" of the Province of Quebec	29
Cabbage butterfly	8
" root maggot	9
Cacœcia cerasivorana	45
" rosaceana	45
Canadian Naturalist, The	22
Canarsia Hammondi	45
Canker worms	7
Carpocapsa pomonella	43
Carterocephalus Mandan	20, 31
Caulfield, F. B., Death of	13
Chimarocephala viridi fasciata	76
Chionobas jutta	30, 31
" semidea	32
Chlœaltis conspersa	75
Chrysophanus epixanthe	31
Circotettix carlingianus	78
" lapidicolus	78
" maculatus	78
" verruculatus	78
Clothes moths	53
Clover hay moth	44
Clover root-borer	11
Coleophora malivorella	47
Colias interior	20, 29, 33
Conocephalus ensiger	72
" exiliscanorus	73
" nebrascensis	72
" robustus	72
Council, Report of	14
Cowdry, Dr., Death of	7
Crickets, Songs of	62
Cut-worms	8
Cyrtophyllus concavus	70
Darapsa myron	10, 13
Debis Portlandia	30
Diagrams of insects	87
Dictyophorus reticulatus	75
Dissosteira Carolina	77
Doran, E. W., Article by	61
Drasteria erechtea	39
Dried-fruit moth	45
Economic Entomologists, Association of	39
Election of Officers	15, 20, 42
Electricity *vs.* Caterpillars	81
Encoptolophus sordidus	76
Entomological Club, A. A. A. S	43
Epilachna borealis	79
Eudemis botrana	46
Eye-spotted bud-moth	7
Fall web-worm	9, 58
Fletcher, J., Articles by	49, 53, 59
Forest and Shade Trees, Insects Injurious to	86
Fyles, Rev. T. W., Articles by	22, 29
Gelechia pinifoliella	48
Geological Section, Report of	17
Gomphocerus, Song of	76
Gooseberry fruit-worm	44
Gosse, the late P. H., Visit to Canadian Haunts of	22
Grain pests, Remedy for	80
Grape-berry moth	46
" vine flea-beetle	10
" " sphinx	10, 13
Grapta gracilis	30, 32
Graptodera chalybea	10
Grasshoppers, Damage from	11
" Songs of	62
Gryllus neglectus	64
Gryllotalpa borealis	61, 63
Gypsy-moth, Report on the	86
Hadena devastator	8
" sputatrix	8
Hæmatobia serrata	12, 42, 49
Harrington, W. H., Article by	88
Hopper-dozer, Description of	11
Horn fly	12, 42, 49, 53
Howard, L. O., Article by	40

	PAGE.
Hylesinus trifolii	11
Hyphantria textor	9, 58
Insecticides and fungicides	82
Insects, Notes on Killing, Preserving and Relaxing	59
Katydids, Song of	68
Lactista gibbosus	77
Leaf-hoppers	11
" rollers	45
Librarian, Report of	4
Liparocephalus brevipennis	21
Lycæna Couperi	31
Lyman, H. H., Article by	32
Mamestra picta	8, 13
Maynard's North American Butterflies	87
Melanoplus femur-rubrum	11, 75
Meromyza Americana	11
Microcentrum laurifolium	70
" retinervis	69, 70
Micro-lepidoptera, Some injurious	43
Microscopical Section, Report of	17
Mineola indiginella	44
Moffatt, J. A., Articles by	35, 43
Mole cricket	61, 63
Montreal Branch, Report of	19
Mosquitoes, Experiment against	40
Moths of Compton, P.Q	28
Mud-daubers	4
Murtfeldt, Miss, Article by	58
Nemobius fasciatus	65
" vittatus	64
Nepigon, Insects collected at	20
Obituary	88
Ocneria dispar	86
Œcanthus augustipennis	67
" fasciatus	66
" latipennis	67
" niveus	65
Onion-fly	14
Orchelimum nigripes	73
" sylvaticum	73
" volantum	73
" vulgare	73
Ormerod, Miss E. A., Text-book of Agricultural Entomology	83
Ormerod, Miss G. E., Diagrams of Insects	87
Ornithological Section, Report of	18
Orocharis saltatrix	67
Packard's Forest-tree insects	86
Pamphila egeremet	31
" Manitoba	31
" Metacomet	31
Pear-leaf blister	9
" tree blister-mite	9, 40
" " Psylla	40
Pelopæus cementarius	4
" cœruleus	4
Phoxopteris comptana	47
" nubeculana	46
Phytoptus pyri	9, 40
Pieris rapæ	8
Pine-trees, Insects affecting	45, 48
Plochionus timidus	58
Plodia interpunctella	45
Plum curculio, Exploded Remedy for	80
Power of Insects to resist action of frost	35
Provancher, Death of the Abbé	13, 88
Psylla pyricola	40
Pyralis costalis	44
Report of Botanical Section	16
" Council	14
" Delegate to Royal Society	5
" Geological Section	17
" Librarian and Curator	4
" Microscopical Section	17
" Montreal Branch	19
" Ornithological Section	18
" Treasurer	3
Retinia Comstockiana	45
Riley's Directions for Collecting and Preserving Insects	13
Scale, The Fluted	82
Scudderia angustifolia	67
" curvicauda	68
" furcata	66
Scudder, S. H., Articles by	62, 78
Silver-top	10
Songs of our Grasshoppers and Crickets	62
Spharagemon æquale	77
" Bolli	77
Squash-vines, An insect destructive to	78
Stenobothrus curtipennis	76
Strawberry leaf-roller	47
Thecla læta	31
" Titus	31
Tinea pellionella	55
" tapetzella	54
Tineola biselliella	54
Tmetocera ocellana	7
Toads, Usefulness of	83
Treasurer, Report of	3
Trimerotropis citrina	77
" columbia	77
" perplexa	77
" vinculata	77
Trip to Mount Washington	32
Tropidolophus formosus	76
Vedalia cardinalis	82
" Success of, in Egypt	80
Virginia-creeper sphinx caterpillar	10
Warble-fly of ox	84
Web-worm tiger	58
Wheat midge	83
" stem maggot	11
Wire-worms, Remedies for	81
Xiphidium fasciatum	
" nemorale	75
Zaræa Americana	4
Zebra caterpillar	8, 13
Zophodia grossulariæ	44

TWENTY-THIRD ANNUAL REPORT

OF THE

ENTOMOLOGICAL SOCIETY OF ONTARIO

To the Honorable the Minister of Agriculture:

SIR,—I have the honor to present herewith the annual report of our Society for its twenty-third year under the auspices of the Department of Agriculture of Ontario.

The report contains an account of the proceedings at our annual meeting, which was held in London on the 31st of August and the 1st of September, 1892—including the election of officers for the ensuing year, the reports of the Council, the Treasurer, the Librarian and Curator, the Montreal branch and the various Sections of the Society, the President's annual address and the various papers read at the meeting.

The President's address will be found to contain references to all the principal insect attacks of the year. Most of these were, happily, not very formidable, but we regard the arrival from the United States of the Horn-fly pest, during the past season, as a very serious matter. In addition, therefore, to the President's remarks upon it, an illustrated account of its life-history and the best methods of dealing with it has been specially prepared for the report by Mr. Fletcher. Other papers of a practical and more or less popular character are also presented herewith, and will, it is trusted, be found interesting and useful to the general reader.

Our monthly magazine, the *Canadian Entomologist*, has been regularly issued during the past year, and has now almost completed its twenty-fourth volume, A larger number of writers than ever before have contributed to its pages, and its high scientific character has been ably maintained.

I have the honor to be, Sir,
Your obedient servant,

W. E. SAUNDERS,
Secretary.

ANNUAL MEETING OF THE SOCIETY.

The thirtieth annual meeting of the Entomological Society of Ontario was held in its rooms in Victoria Hall, London, on Wednesday, August 31st, and Thursday, September 1st, 1892, the President, Rev. C. J. S. Bethune, Port Hope, occupying the chair.

A Council meeting was held on Wednesday morning at 10 o'clock, at which their annual report was drawn up, and various matters of business pertaining to the society were transacted.

At 3 p.m. a general meeting of the Society was held. Letters of regret for their inability to attend were read from Messrs. H. H. Lyman, Montreal; A. H. Kilman, Ridgeway; J. D. Evans, Sudbury; Gamble Geddes, Toronto. A letter was read by Mr. Moffat from Mr. F. G. Buckell, of London, England, upon the expansion of the wings of Lepidoptera with reference to Mr. Moffat's paper upon this subject in the annual report for 1891, p. 32. A letter was also submitted by Mr. Harrington from the Rev. G. W. Taylor, of Victoria, Vancouver Island, stating that Aphides of all kinds had been extremely abundant during the present season, but that they had been very much parasitized by Hymenoptera.

REPORT OF THE TREASURER.

The Treasurer, Mr. J. M. Denton, presented his annual statement of the finances of the Society and explained the various items of receipts and expenditure. He stated that the balance on hand, $319.13, was somewhat larger than usual, but it would all be required to meet the expenses of the remaining four months of the year, during which there was very little income to be expected.

RECEIPTS, 1891-92.

Balance from last year	$ 239 93
Membership fees	335 22
Sales of *Canadian Entomologist*	99 44
" Pins, Cork, etc.	47 18
Government grant	1,000 00
Interest on current account	3 55
	$1,725 32

EXPENDITURE, 1891-92.

Printing *Canadian Entomologist*, etc.	$ 509 77
Report and meeting expenses	226 12
Library	44 25
Purchase of collection	50 00
Expense account (postage, stationery, etc.)	107 54
Rent and fuel	116 00
Insurance	35 00
Pins, cork, etc.	17 51
Salaries of officers	500 00
Balance	319 13
	$1,725 32

Audited and found correct,

(Signed.) W. E. Saunders, Jas. H. Bowman, } Auditors.

London, Ontario,
August 30th, 1892.

REPORT OF THE LIBRARIAN AND CURATOR.

Mr. J. A. Moffat presented and read his report as follows :

The number of volumes added to the library during the year is 46, made up thus: Periodicals and reports of Societies received in exchange, which have been bound since last report, 37. Bound volumes which have been received as gifts from various public institutions, 8. By purchase, 1. The whole number on the register is now 1,214.

The number of volumes issued to local members during the year was 55.

The Society's collection of native Lepidoptera has received several valuable additions by gift, exchange and capture. This department now numbers 935 species and varieties, mostly taken in Ontario.

The Toronto list of 1883 contained 930 names, many of which were not then, and some of them not yet represented in the Society's drawers. Six or seven years ago when I first turned my attention to the micros there were not a hundred names of these in all our lists, now there are representatives of two hundred and twenty-four species in the Society's drawers, and a quantity of unnamed material on hand besides. It is quite evident that our field in Ontario is not half worked, whilst some of those that are engaged in it fail to make their success known.

The arrangement of the European beetles has been completed, and they occupy fourteen drawers, numbering 952 species. There is a large number of duplicates for disposal; some of them are very attractive specimens.

Respectfully submitted,

(Signed.) J. Alston Moffat,
Librarian and Curator.

REPORT FROM THE ENTOMOLOGICAL SOCIETY OF ONTARIO TO THE ROYAL SOCIETY OF CANADA.

By the Rev. C. J. S. Bethune, D.C.L., Delegate.

On behalf of the Entomological Society of Ontario I have the honor to report that it continues to prosper and to perform much useful work. During the past year the ordinary membership was well maintained, while the number of associate members (who are not resident in Canada) was largely increased.

The *Canadian Entomologist*, the monthly publication of the Society, continues to attract contributions from all the leading Entomologists of North America, and to maintain its well established reputation. The 23rd volume was completed in December last, and consisted of 292 pages, instead of the usual 240. Its contributors numbered fifty-one, of whom fourteen were residents of Canada; thirty-five, of the United States; one, of England; and one, of Germany. No less than sixty-one new species of insects were described in its pages, and the life histories of twenty-one species were recounted. Among the more important papers, besides those of a descriptive character, may be mentioned, "Notes on Canadian Rhyncophora," by W. H. Harrington; "The Position of Limenitis Proserpina," by W. H. Edwards; "Notes on Coleoptera," by Dr. J. Hamilton; "Silver-top in Grass and the Insects which may produce it," by H. Osborn; "Some Indiana Acrididæ," by W. S. Blatchley; "North American Chernetidæ," and "The Dysderidæ of the United States," by Nathan Banks; "Some Destructive Locusts of North America," by Lawrence Bruner; "A Catalogue of the Thysanoura of North America," by A. D. Macgillivray; and the official report of the meeting in Washington of the Entomological Club of the American Association for the Advancement of Science.

Five numbers of the 24th volume have been issued during the current year, each of them with an increased number of pages; fifty-nine new species of insects have already been described, and several papers of more than ordinary value and interest have been published.

In addition to the monthly magazine, the Society presents an annual report to the Legislature of Ontario. The 22nd was published by the Department of Agriculture in January last. This report for 1891 contains an account of the proceedings at the annual meeting of the Society, the President's annual address and the reports of the officers, the Montreal Branch and the Sections, and the papers read on the occasion.

The President in his address drew the attention of the Society to the most serious insect attacks of the year, and gave an account of the ravages of "the Eye spotted bud moth" (*Tmetocera ocellana*), "the Lesser Apple-Leaf Folder" (*Teras minuta*), "the Oblique banded Leaf-roller" (*Cacœcia rosaceana*), "the Canker-worms" (*Anisopteryx vernata* and *pometaria*), "Cut-worms," the "Pea-weevil" (*Bruchus pisi*), "the turnip flea-beetle." "the Striped Cucumber Beetle" (*Diabrotica vittata*), and other more or less injurious insects. Among the papers published in the annual report may be mentioned the following: "Can Insects Survive Freezing?" and "Pamphila Manitoba and its Varieties," by Mr. H. H. Lyman; "*Nematus Erichsonii*," the Larch Saw-fly, whose destructive ravages among the tamarac swamps of the Province of Quebec are fully related by the Rev. T. W. Fyles; "a Microscopical Examination of an Unexpanded Wing of *Callosamia promethea*," by Mr. J. A. Moffatt; "an Account of some of the Collections of Insects in England and Germany," by Capt. Gamble Geddes; "the Northern Mole Cricket," by Mr. J. Fletcher; "Notes on Japanese Insects," by Mr. W. H. Harrington; "The Moose Fly," by Prof. W. A. Snow.

The various Sections of the Society, which were organized about two years ago, report very satisfactory progress. The Ornithological Section state that their "membership while not large is enthusiastic;" they have prepared a list, which is published in the annual report, of 97 birds known to breed in the county of Middlesex, Ontario, and of 20 other species observed in the same neighborhood and which will probably be found breeding there. The species are distinguished into those which are decidedly beneficial on account of their feeding habits, those which are neutral, and those which are open to doubt as being possibly injurious.

The Microscopical Section have held numerous regular meetings and several popular exhibitions; the subjects to which their attention was chiefly devoted were the manipulation of the microscope and the preparation of objects, and the examination of *algæ*, *fungi*, including the destructive Black-knot on fruit trees, ferns, etc.

The Botanical Section held weekly meetings throughout the greater part of the year, and have begun the formation of a collection of native plants, which is deposited in the rooms of the Society; a floral calendar has been kept; two mosses new to Canada have been discovered, and seventy species of fungi have been added to the North American list.

The members of the Geological Section have held evening meetings every week, at which they applied themselves to the serious and methodical study of the science, and when the season admitted, frequent field-excursions were made for practical work. During these they covered a large area of country and gathered many rare and valuable specimens of fossils.

The formation of these Sections of the Entomological Society for the encouragement of work in other departments of science, has thus been amply justified. The results have been most satisfactory, and the cheerful assistance given by the members of one section to those of another has been most useful. While occupying widely different fields of study they are constantly brought into contact with one another and find the benefit of co-operation as members of one Society, as well as the advantage to be derived from its library and rooms, and complete organization. The result is to make London, the headquarters of the Society, a centre of scientific work for the peninsula of Ontario, and to attract its residents, especially the young, into the delight-giving paths of Natural Science.

The annual report of the Society contains also a full record of the very important meeting of the Association of Economic Entomologists held in Washington in August last under the presidency of our colleague, Mr. James Fletcher, of Ottawa. This Society was

first organized in Toronto in 1889, and has already become a very influential body, including amongst its members all the leading scientists in North America who are engaged in the study of practical Entomology. Its proceedings are accordingly of great scientific value as well as of immense practical value to farmers, gardeners and fruit-growers everywhere. The President, in his opening address, drew special attention to the want of reliable statistics concerning the ravages of destructive insects and the consequent financial loss to the community; a committee was accordingly appointed to prepare a report upon the subject. During the meeting, which occupied two days, a large number of papers on injurious insects were read and discussed, and much useful information was thus brought forward and made public.

While technical investigations in Entomology are by no means neglected, it is evident that our Society is becoming increasingly devoted to practical work, and is thus conferring very great benefits upon the agricultural interests of the country. Every fruit-grower and gardener is obliged to wage unceasing war against the infinite variety of injurious insects, and he can only do so with any hope of success when he has been taught by experienced scientists what methods to adopt and what means to employ. The publications of the Society from year to year set forth the best methods, and furnish instruction as to the best means for carrying on this warfare. The good work thus done will, we trust, be continued with unflagging zeal in the future.

The President gave an account of the meetings held at Rochester, N.Y., during the third week of August, of the Association of Economic Entomologists of North America and the Entomological Club of the American Association for the Advancement of Science, which he and Mr. Fletcher had attended as representatives of the Society.

The Rev. T. W. Fyles read a paper on *Zarœa Americana* which he found feeding on the Buck Bean, *Menyanthes trifoliata*. He also read an interesting account of some of the rarer butterflies found in the Province of Quebec. Mr. Fletcher remarked upon the paper and gave some further information regarding the life-history of some of the species referred to.

Mr. Fletcher then gave an account of a parasite of the Currant-worm. This, he described, as an exceedingly small insect which lives inside the egg of the Saw-fly, from which the Currant-worms hatch. He also mentioned that two species of Mud daubers (*Pelopœus cementarius* and *cœruleus*) had been bred by him from the same mud nest.

The Rev. T. W. Fyles gave a most interesting account of a visit which he had paid to the home of the late Philip H. Gosse, author of the "Canadian Naturalist," who resided many years ago near Compton, in the Eastern Townships, P.Q.

The meeting adjourned at 5.45 p.m.

EVENING SESSION.

In the evening the Society held a public meeting in its rooms in Victoria Hall which was largely attended by members and other friends from London and the neighborhood, amongst whom the following were noticed: Mr. W. H. Harrington (Vice President) and Mr. James Fletcher, of Ottawa; Rev. T. W. Fyles, South Quebec; Messrs. J. M. Denton, W. E. Saunders, J. Alston Moffat, J. A. Balkwill, R. W. Rennie, F. W. Hodson, John Weld, W. Stevenson, H. Stevenson, J. H. Bowman, J. Dearness, Dr. Gardiner, Rev. W. M. Rogers, Dr. Woolverton, C. B. Edwards, W. Foot, of London and others.

THE PRESIDENT'S ANNUAL ADDRESS.

The Rev. Dr. Bethune, Warden of Trinity College School, Port Hope, President of the Society, took the chair at 8 o'clock, and proceeded to deliver his annual address, as follows :

Gentlemen : The pleasant duty once more devolves upon me of welcoming you all to our annual meeting. It is with great gratification that I do so, inasmuch as all goes well with our Society, and the reports of the council and officers, and also of the sections, record a steady progress and a continued prosperity. It is now thirty years since Mr. Saunders and I issued a circular to the collectors of insects in Canada, who were at that time very few indeed in number, and by this means obtained the names and addresses of all who were interested in Entomology. After some correspondence had taken place, it was decided to call a meeting at Toronto for the purpose of forming a Canadian Entomological Club. A meeting was accordingly held in the rooms of the Canadian Institute in Toronto, on the 16th day of April, 1863, at which nine gentlemen were present, and resolutions were drawn up for the formation of "The Entomological Society of Canada." It will interest you, no doubt, to hear the names of these pioneers of the science in this country. They were the Rev. Prof. Hincks and Prof. Croft, of the University of Toronto ; Mr. J. H. Sangster, Dr. Beverley R. Morris and James Hubbart, of Toronto ; Dr. Thos. Cowdry * and his son, Mr. H. Cowdry, of York Mills ; Mr. Saunders, of London, and myself. We had also letters of sympathy with the project from Mr. E. Billings, of the Geological Survey, Montreal ; Mr. R. V. Rogers, Kingston ; Mr. F. Reynolds, Hamilton ; Mr. B. Billings, Prescott ; Rev. V. Clementi, Peterborough ; and Mr. E. Baynes Reed, of London. These gentlemen all co-operated very heartily in the work of the Society and largely contributed to its success. From this beginning of fifteen members the Society has gone on, grown and prospered, and it has now become a large and influential body, with a well-established reputation and a recognized scientific status. It becomes us all then, and especially the younger members, to keep up the good work and to do all in our power, both individually and collectively, for the well-being and prosperity of our beloved Entomological Society of Ontario. There is an unlimited field for work in this country, both in practical and scientific entomology. The life-histories of countless insects remain to be investigated, large areas of our country have never been explored, and in some orders of insects almost nothing has been done. In some department or other, each of us may do some good work even though our opportunities may be few and our time limited.

Fig. 1.

In accordance with our long established custom it now devolves upon me to bring before you some account of the chief insect attacks of the year in this province. Among those that I referred to last year, "the Eye-spotted bud-moth" (*Tmetocera ocellana*, Schiff) Fig. 1, continues to be very injurious to apple-trees in many parts of the country. Canker-worms have been very abundant and destructive in various places. (Fig. 2 represents the male and wingless female of *Anisopteryx Vernata*.) At Ottawa, on the first of June, I observed them in vast numbers upon forest trees in the neighborhood of the city, and have since been informed that they stripped them of their foliage ; they especially attacked the elm, basswood and ash, but were rarely seen upon the apple, which is the usual food of the insect. At Winnipeg also, as no steps were taken to check their ravages last year, they have continued the work of destruction upon the shade trees of the city. It is much to be deplored that the municipal authorities have not taken the trouble to protect their trees and keep the insect within due bounds.

Fig. 2.

* We regret to have to record that Dr. Thomas Cowdry died on the 16th of October, 1892, at the residence of his son, Mr. E. Cowdry, Simcoe, Ont., in the 80th year of his age. Dr. Cowdry had been in poor health for some time and resided of late years in Bermuda for the sake of the genial climate. He returned to Canada in the spring and died at a good old age, much beloved and respected by all who knew him.

Cut-worms have, upon the whole, been less abundant this year. Mr. Moffat tells me that they were very injurious in gardens about London this spring, but owing to the long continued wet weather most of them had failed to mature, and consequently there were very few of the moths to be seen. Early in the season they were reported to have been very abundant in Alberta, but I have heard no particulars since. At Port Hope they were troublesome as usual when the young plants were first set out in the spring. Lately the moths of several species, especially *Hadena devastator* and *sputatrix* *Agrotis jaculifera* *ypsilon* (Fig. 3) *herilis* and *tricosa*, have been very abundant, and will probably produce a large crop of worms for next year.

Fig. 3.

The Zebra caterpillar (*Mamestra picta*, Harris) Fig. 4, has been unusally abundant this year. Its favourite food is cabbage, but I have found it injurious to salsify, beets, spinach, lettuce and other vegetables, and common also upon many weeds. The caterpillar (Fig. 4, *a*) is easily recognized, being more than ordinarily handsome. When fully grown it is about two inches long, of a velvety black colour, with the head and legs red, and two bright yellow stripes along each side; between these stripes there are numerous cross bars of yellow, which are so striking that they have caused the worm to be known as the Zebra caterpillar. The moth (Fig. 4 b.) does not compare with it in beauty, being dull and inconspicuous in colour; its fore-wings are deep brown, shaded with purple and marked with paler spots in the middle; the hind wings are white, faintly edged with brown on the outer margin. It is apparently double-brooded, as we have found the caterpillars in July and August and also in October. When young the caterpillars are gregarious and feed all together on the underside of a leaf. In the case of the cabbage they thus make a conspicuous white spot, and the whole brood can easily be picked off and crushed under foot, but when they are older they scatter over the leaves and are much more difficult to deal with.

Fig. 4.

The Cabbage butterfly (*Pieris rapæ*, Linn) Fig. 5 represents the male and Fig. 6 the female, has been remarkably abundant about Port Hope this year, and very common in

Fig. 5.

Fig. 6.

the various parts of the province that I have chanced to visit. Its injuries must be very considerable, judging from what I have observed myself. The most satisfactory method

of dealing with it is the application of Persian Insect Powder (Pyrethrum.) This may be used in its pure state or mixed with four times its weight of common flour. The powder should be puffed with a small bellows into the heads of the infested cabbages as soon as the caterpillars are observed, and at different times during the season. A few applications usually suffice to destroy the insect.

Another serious enemy to the cabbage is the Root Maggot (*Anthomyia brassicæ* Bouché) which is reported as being specially injurious this year in the neighbourhood of Ottawa. In 1885 Mr. Saunders stated that the cabbage crop had been materially injured by it, and in 1890 Mr. Fletcher gave an account of it in his annual report, and mentioned that "in most parts of Canada it was the insect which gave the greatest trouble to the cabbage grower." Like most of our pests it has been imported into this country from Europe, but has long been naturalized amongst us. The perfect insect is a small two-winged fly, of a grayish colour. It lays its eggs in the spring upon the young plants, depositing them beneath the surface of the ground as far down as it can reach its ovipositor, or creep in some convenient crevice. In a few days the young maggots hatch out, feeding at first upon the outside, and subsequently as they grow larger boring into the stem. When there are many about the same plant, as is commonly the case, only a few of them penetrate the root, while the remainder live in the soil upon the exuding juices of the injured plant. The effect of the attack is the death of the plant as soon as dry weather sets in. Mr. Fletcher has found that the maggots can be destroyed by the application of a decoction of white hellebore. He used two ounces to three gallons of water, and after drawing away some of the surface soil forced the liquid about the roots of the plant with a garden syringe and then replaced the soil. The results of this treatment have, so far, been very satisfactory. Nitrate of soda as a surface dressing and watering with lime water have also been recommended as effective remedies.

The Pear-leaf blister (*Phytoptus pyri*, Sheuten) has been spreading over Ontario and the Maritime Provinces during the present season. It is a tiny mite which forms a gall on the leaf, and from the parent gall the young mites spread and form new ones, which soon give a blistered appearance to the leaf. In the autumn they remove to the leaf buds at the ends of the twigs and pass the winter beneath the leafy scales. Spraying with kerosene emulsion in the spring when the buds first open is recommended as a remedy, but nothing has as yet been found to exterminate the creature. It should be watched by our fruit growers and experiments made for its destruction.

The Fall Web-worm (*Hyphantria textor*, Harris) Fig. 7, to which I find it necessary to make an annual allusion, is this year more abundant and wide-spread than ever. Though so conspicuous and so easily dealt with, I find that few people will take the trouble to destroy it, and consequently it is rapidly becoming a most serious pest. It attacks deciduous trees of every description and also shrubs and herbaceous plants. It is especially injurious to young trees, which it soon strips of every vestige of foliage. Several young elm trees planted along the streets of Port Hope were rendered quite bare a few weeks ago by this caterpillar, whose work was done in a few days and thus escaped notice at first. These trees have put out a fresh crop of leaves, but I fear that they will be seriously exhausted of their strength, if not finally killed. Mr. Fletcher drew attention recently in the *Ottawa Field Naturalist* to the ravages of this insect, with very good results, as many people were led by his remarks to destroy the webs and their inmates wherever they found them. It is to be hoped that all the members of this Society will use their influence in the same way in any part of the country where they may be.

Fig. 7.

Among insects noticeable for their abundance this year, though not especially injurious. I may mention the Green grape-vine Sphinx (*Darapta myron*, Cramer)

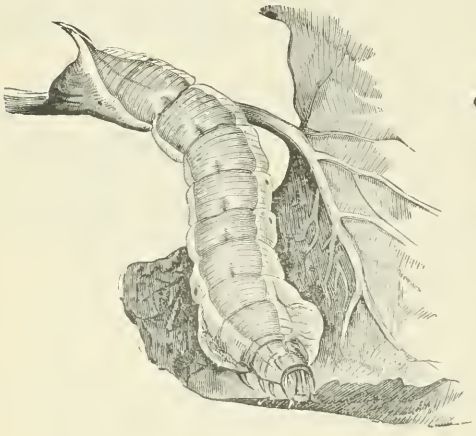

Fig. 9.

Fig. 8.

which is very numerous on the foliage of the Virginia creeper. Fig. 8 represents the moth and Fig. 9 the caterpillar. Many of the caterpillars, however, are attacked by its well known parasite, Fig. 10, and it is not likely that the insect will gain too much headway.

Fig. 10.

Another grape insect is much more injurious both to the vine and the Virginia creeper. I refer to the grape vine Flea-beetle (*Graptodera chalybea*, Illig) which is a serious pest in many parts of the country. This insect passes the winter in the perfect state, and in the spring the beetle attacks the buds of the vine as soon as they begin to swell, thus destroying the future foliage and fruit in their embryo condition. It is a small, polished steel-blue beetle, varying in colour to green and purple, about three-twentieths of an inch in length, dark green beneath, with brownish-black antennæ and feet. It is called a "flea-beetle" from its immensely developed thighs (Fig. 11) which enable it to jump long distances in the same manner as the familiar insect from which it takes its name. After a few weeks the first crop of beetles disappears, and is soon followed by colonies of little worms (Fig. 12, much magnified) dark-brown or blackish in colour, which speedily make their presence known by riddling the leaves with small holes. (Fig. 13.) These attain their full growth in July, descend to the earth to assume the pupa state, and after a week or two come out as perfect beetles. They do the greatest amount of injury in early spring, but in the summer also they are frequently very injurious by entirely stripping the vine of its foliage. I am informed by the Rev. W. J. Mackenzie that the vines in the neighbourhood of Milton have been so seriously injured by this insect, especially in the spring, that they have produced very little fruit during the last three years. The most effective remedies, so far as known, are, first, to remove and burn all fallen leaves and other rubbish about the vines in the autumn, and secondly, to syringe the canes and young foliage with a weak mixture of Paris green and water in early spring. Strong soap suds or powdered hellebore might be employed against the larvæ in the summer time, when the use of Paris green would be dangerous.

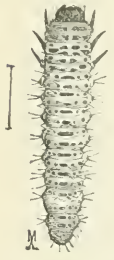

Fig. 12.

Fig. 11.

Turning from the garden to the field, I find that "Silver-top" is still very common in meadows. At the recent meeting of Economic Entomologists in Rochester, N. Y., Mr. H. Osborn, of the Iowa Experiment Stations, gave an account of his method of dealing

with this injury. It is mainly caused by small leaf-hoppers (*Jassidæ*). These are collected and destroyed by the use of a "hopper-dozer." This is a thin sheet-iron pan, about three feet in width, and of any length that may be found convenient; the back and sides of the pan are turned up about five or six inches, and the front is bent over about half an inch in order to form a smooth edge; the pan is mounted upon low wooden runners, about two inches in height, and is drawn by means of a rope attached to either end. When ready for use the pan is smeared over with coal tar to the depth of quarter of an inch or more, and is then dragged over the infested fields. The front of the pan, as it strikes the grass, causes the hoppers to spring into the air when most of them alight on the pan and are caught in the tar. A large area can be gone over very quickly and myriads of the insects thus destroyed. A field treated in this way before the grass has

Fig. 13.

become too long, and again when it has begun to grow after cutting, will be easily kept clear of this pest. Mr. Osborn found it advantageous to keep the infested meadow closely cropped by enclosing a larger number of cows upon it than usual. This simple machine—"the hopper-dozer"—can also be used with great advantage for the destruction of grass-hoppers or locusts.

The Clover-root borer, (*Hylesinus trifolii*, Müller) is reported by Mr. Kilman to be troublesome in the neighbourhood of Ridgeway, Ont. He says that "it literally honeycombs the clover roots in all fields here during the second season of the plant's growth, and the weakened plant rarely survives the winter following. The farmers then say that their clover is 'winter-killed.'" Mr. Fletcher in his last year's report (1891) drew attention to the occurrence of this insect in Canada, and recommended as a remedy the plowing under of the clover when it is found to be infested.

The Common red-legged Grass-hopper (*Melanoplus femur-rubrum*, Burm), is very abundant just now in many parts of the Province and is doing a considerable amount of damage. It is especially injurious to oats, as it has a habit of climbing up the stalk and biting off the ear. I have been informed that a field of ten acres in the neighbourhood of Port Hope was severely damaged in this way. It would be quite worth the farmers' while to use "hopper-dozers" for these insects, as already described. By making the coating of tar about half an inch thick it would securely hold the grass-hoppers.

The Wheat-stem maggot (*Meromyza Americana*, Fitch), which is also known as "the Wheat bulb worm" when it infests the roots of the plant, has been reported as injurious in some localities. Early in the spring the pupæ of this insect are found in the roots of wheat and grasses; these are the pupæ of the last brood of the previous year and have passed the winter in this state. The flies emerge from these at the end of May and proceed to lay their eggs on the leaves of many kinds of grass, and also upon the leaves of the forming stems of wheat, which has been sown in May and is well up by the first of June. These eggs produce a small glassy green maggot which eats into the base of the top joint of wheat, barley and grasses, and causes the ear to turn prematurely white before the rest of the crop is ripe. This is the "silver-top" of wheat and barley which

is frequently to be seen about the first of July. From these maggots there comes a second brood of the flies in August which deposit their eggs on grasses and on any volunteer wheat that there may be, and finally a third brood is matured in September in time to attack the fall wheat before the cold weather sets in. The remedies which Mr. Fletcher proposes (Bulletin No. 11) are "(1) late sowing of winter wheat; (2) harrowing of stubble soon after the crop is carried, so as to start the volunteer crop quickly, this latter to be plowed in early in September; (3) the application of a special fertilizer as a top dressing when winter wheat is known to be affected, this will help the injured plants to overcome the injury."

The last insect attack to which I desire to draw your attention is, perhaps, the most formidable of all. I refer to the recent occurrence of the "Horn-fly" (*Hæmatobia serrata*, Rob.) in various parts of this Province. At the beginning of August it was first reported to Mr. Fletcher as attacking cattle at Oshawa, and soon after its appearance was announced at Toronto and London; during the last few days I have been informed of its presence at Bowmanville, Port Hope, Kingston, Ottawa and at Boucherville near Montreal. It has, no doubt, come to us from the neighbouring States where it has prevailed for some time. The insect is of European origin and has evidently been brought into the United States with imported cattle. It was first observed in New Jersey in 1887, and has now spread over the Atlantic States to Florida, as far west as Indiana and northward to Canada. The adult is a small gray fly, closely resembling the common house-fly in appearance, but a little smaller. It derives its name of Horn-fly from its singular habit of clustering, when at rest, upon the base of the horns of cows; it is by no means confined to this situation, however, but swarms upon the back between the head and foreshoulders, and on any parts which cannot be reached by the tongue or tail of the animal. When feeding it ranges over the back, flanks and legs. The injury done by this fly is by biting with its mouth-organs the skin of the animal and sucking its blood; as it occurs in great swarms, it seriously irritates the cattle and causes them, by loss of blood, to fall off in condition and diminish the yield of milk. The eggs are laid on the fresh droppings of the cattle and the insect passes its maggot stage in these; it subsequently goes down to the earth to form its pupa from which the winged fly in due time emerges. Dr. Riley and his assistants at Washington have carefully studied the life history of the insect, and state that "from ten to seventeen days, say two weeks, is about the average time from the laying of the egg to the appearance of the flies, and with four active breeding months, from May 15th to September 15th, there will be eight generations." We cannot then wonder at the sudden and enormous multiplication of the insect. The remedies that have been found most effective are the smearing of the horns and all the affected parts of the animal with any greasy substance to which a little carbolic acid has been added for the sake of its healing effect; train oil has been found especially useful as it keeps the flies away for five or six days after an application; common axle-grease and tallow have also been employed with good effect. In order to destroy the broods of the insect, the best plan is to throw a spadeful of lime over the fresh droppings, or if the weather is dry and sunny, to rake the fresh cowdung over the surface of the ground so that it may at once dry up and prevent the maggots from maturing; boys could easily perform this work, as there is always some place in the pasture field where the cattle gather during the heat of the day and where the dung can therefore be dealt with without much trouble. These methods should be especially employed in the early part of the year, wherever the insect is noticed, in order to prevent, or at any rate reduce, the subsequent broods.

Before leaving the subject of practical entomology I may allude for a moment to the splendid work that is being done all over North America by the Division of Entomology at Washington and the official entomologists at the various State experimental stations. The publication of *Insect Life* and the many bulletins that are issued both by the Federal and the State officials contain a vast fund of most useful and valuable information, the results of careful experiments in the field and the laboratory, and painstaking and conscientious studies of the life histories of insects. Similar good work is also being accomplished in this country by Mr. James Fletcher, the Dominion Entomologist at the

Central Experimental Farm at Ottawa. He and I had the pleasure recently of attending the meeting of the Association of Economic Entomologists of North America, which was held at Rochester, N. Y., on the 15th and 16th of August, and of meeting there a large number of the most eminent workers in this branch of science. In England Miss Ormerod has continued her useful work and published last winter her fifteenth "Report of Observations on Injurious Insects and Common Farm Pests," in which she gave a special account of the outbreak of caterpillars of the Diamond-back Moth (*Plutella cruciferarum*, Zeller) over large areas in Great Britain, and devoted a chapter to the use of Paris Green as an insecticide. It is satisfactory to learn that this useful agent is gradually coming into use in England and that the prejudices against its employment are being removed. In India the Trustees of the Indian Museum at Calcutta are issuing a serial publication on Economical Entomology, entitled *Indian Museum Notes*, which is now in its second volume; many of the parts are beautifully illustrated, among which we may specially mention an account of "The Wild Silk Insects of India," by Mr. Cotes, with fourteen very handsome plates.

One of the most useful publications of the year is undoubtedly a work by Dr. C. V. Riley, "Directions for Collecting and Preserving Insects," published by the Smithsonian Institution at Washington. In consists of nearly 150 pages and is illustrated by nearly as many wood cuts, most of them specially prepared for the work. The directions and instructions are most complete and will be found invaluable by beginners, and full of useful hints and ideas for those who are experienced in collecting. Every entomologist is frequently appealed to by beginners to recommend them some book which will teach them how to collect and preserve specimens and how to make a start in the study of the science; hitherto one has been at a loss for a manual which will meet such cases, but now the want is admirably filled. In time we may hope that this work will be followed by a manual of North American insects, which will perform the same service for Entomology that Dr. Gray's works have done for Botany. We are glad to learn that a step is being taken in this direction by Mr. S. H. Scudder, who is now preparing for publication a book on butterflies for boys. The author's name is a sufficient warrant that it will be all that one can desire.

Since our last annual meeting we have had to deplore the loss of two of our members. On the 18th of March Mr. F. B. Caulfield died at Montreal. Since 1887 he has been a frequent contributor to the annual reports of the Society and also wrote occasional papers for the *Canadian Entomologist*; he was also a very energetic member of the Montreal branch and did much to maintain its activity and usefulness. He was a careful and diligent collector and a keen observer. His loss is deeply felt by his associates as well as his family. We sincerely sympathize with his widow and children in their bereavement.

On the 23rd of April one of our most noted Canadian entomologists departed this life. The Abbé Léon Provancher died at Cap Rouge near Quebec, in the 72nd year of his age. His earliest publications were a treatise on Botany in 1858 and a Flora of Canada in 1862. He soon afterwards turned his attention to Entomology, and after publishing a list of the Coleoptera taken at Portneuf, he began in 1874 the publication of his Faune Entomologique du Canada, the third volume of which was not completed till 1890. For more than twenty years also he published his well known monthly magazine *Le Naturaliste Canadien*, which was only discontinued last year. He was a Fellow of the Royal Society of Canada and a member of many other scientific associations. His name will long stand out prominently in the records of science as one of the ablest and most diligent savants that our French compatriots of the Province of Quebec have produced.

I feel that I have now sufficiently trespassed upon your time and attention and beg to thank you very heartily for the kind hearing that you have given me.

Mr. Fletcher moved a vote of thanks to the President for his interesting and valuable address, and in doing so remarked upon the prevalence of the Zebra caterpillar (*Mamestra picta*), the destruction of the Tomato sphinx and the Green sphinx of the grape vine (*Daraysa myron*) by parasites, and the rapid spread of the Horn-fly in Ontario and Western Quebec.

The motion was seconded by the Rev. T. W. Fyles, who expressed the pleasure he had derived from listening to the address. In the course of his remarks he referred to the injuries caused by the Onion fly, and stated that it could be prevented by the use of soot, which drove away the fly, and the affected onion was then enabled to revive and complete its growth.

Mr. Denton gave an account of some experiences in England where a fly had caused the death of a newly born calf and also attacked sheep.

Mr. Fletcher stated that soot was not always an available remedy in this country in consequence of the prevalent use of hard coal. He found nothing better than the application of a kerosene emulsion for the destruction of this and a great variety of other insects. He proceeded to describe the ease with which an emulsion could be made and the mode of its application, as well as its effectiveness as an insecticide.

REPORT OF THE COUNCIL.

The following report was then read and adopted :

The Council of the Entomological Society of Ontario beg to present the following report of their proceedings during the past year.

The ordinary membership of the Society has been satisfactorily maintained, while the number of associate members has been considerably increased during the year. Continued interest has been taken in the various departments of the Society, and much good work has been accomplished.

The Twenty-second Annual Report on practical and general entomology was presented to the Minister of Agriculture in December last, and was printed and distributed early in February. It consisted of one hundred pages and was illustrated with eighteen wood-cuts. The report contained, among other interesting matter, a full report of the proceedings at the annual meeting of the Association of Economic Entomologists, and a valuable list of the birds of Middlesex County.

The Council are pleased to gratefully acknowledge the promptitude with which the report was printed and distributed by the Department, and also the advantage the Society has received from having the reports distributed from Toronto.

The *Canadian Entomologist* has been regularly issued at the beginning of each month, and completed its twenty-third volume in December last. It consisted of 292 pages, an increase of fifty over the usual number. Of the current volume eight numbers have so far been published, and the ninth (for September) is almost ready for distribution, the numbers have averaged over twenty-four pages each, and will make the volume at the close of the year larger than any of its predecessors. There is still a steady demand for the back volumes, which involves the occasional reprinting of a number.

Some valuable additions have been made to the Library during the past year, among which may be mentioned a set of Miss Georgiana E. Ormerod's coloured diagrams of insects injurious to vegetation, which will be found most useful for illustrating popular lectures and addresses to farmers' meetings. The Society's collections of specimens have been carefully looked after by the Curator, Mr. Moffat, many additions have been made to the Lepidoptera, and good progress has been made in the arrangement of the European Coleoptera. The Council would here express their continued satisfaction with the careful and conscientious manner in which Mr. Moffat discharges his duties towards the Society.

The Sections of the Society in the departments of Botany, Geology, Microscopy and Ornithology have been in active operation during the past year. The reports of their proceedings are submitted herewith. It is earnestly to be hoped that the interest awakened in these branches of Natural Science will not be allowed to flag, and that the number of their adherents will steadily increase.

From the Treasurer's report it will be seen that there is at present a balance on hand of $319.13, which is a larger amount than usual. The greatest care has been taken to keep the expenditure within due limits, as hitherto the amount remaining at the time of the annual meeting has not proved sufficient to carry on the work of the Society till the close of the year, during which time little or no money is received by the Society. The amount now on hand will all be required for necessary expenses before the annual subscriptions begin to be paid in January.

The Society was represented at the meeting of the Royal Society of Canada, which was held at Ottawa at the end of May, by your President, Dr. Bethune, who was subsequently elected a Fellow of the Society. During the present month of August important meetings were held at Rochester, N. Y., at which the Society was represented by the President and Mr. Fletcher. It is gratifying to record that the former was elected first Vice-President of the Association of Economic Entomologists of North America, and President of the Entomological Club of the American Association for the Advancement of Science for the ensuing year.

All which is respectfully submitted.

(Signed) Charles J. S. Bethune, President.

ELECTION OF OFFICERS.

The following were elected officers for the ensuing year:

President—W. Hague Harrington, Ottawa.

Vice-President—J. M. Denton, London.

Secretary—W. E, Saunders, London.

Treasurer— J. A. Balkwill, London.

Directors—Division 1, James Fletcher, F.L.S., F.R.S.C., Ottawa.
Division 2, Rev. Dr. Bethune, F.R.S.C., Port Hope.
Division 3, Gamble Geddes, Toronto.
Division 4, A. H. Kilman, Ridgeway.
Division 5, J. Dearness, London.

Librarian and Curator—J. Alston Moffat, London.

Editor of the "Canadian Entomologist"—Rev. C. J. S. Bethune, M.A., D.C.L. Port Hope.

Editing Committee—J. Fletcher, Ottawa; H. H. Lyman, Montreal; Rev. T. W. Fyles, South Quebec; J. H. Bowman, London.

Delegate to the Royal Society of Canada—The President.

Auditors—J. H. Bowman and W. E. Saunders, London.

The reports for the past year of the various sections of the Society were next read by their respective secretaries.

REPORT OF THE BOTANICAL SECTION OF THE ENTOMOLOGICAL SOCIETY OF ONTARIO.

This Section was organized for 1892 on the 16th of April, with Mr. J. A. Balkwill as Chairman and Mr. J. Dearness as Vice-Chairman.

The meetings were held regularly up to August, with considerable interest manifested.

An outing to Komoka on the 24th of May, and one to the "Swamp of Death Oxford Co., were indulged in by some of the members.

Messrs. Dearness, Bowman, Stevenson and Althouse were very energetic in field work.

The following rare plants have been collected :

	Collector.	Locality.
Anagallis arvensis	Mr. Moffatt	Campbellville.
Poterium sanguisorba	"	"
Valerianella olitoria	Mr. Dearness	Twenty Mile Creek.
Viola rotundifolia	"	"
Corydalis glauca	Messrs. Dearness and Bowman	Pine Pond (Swamp of Death).
Dalibarda repens	" "	"
Lepidium campestre	" "	Twenty Mile Creek.
Barbarea vulgaris	" "	"
Viola carnina var rupestrhs	" "	"
Cassia Marilandica (3 ft. igh)	Mr. Dearness	Tp. of Howard.
Symphoricarpus occidentalis	"	"
Actinomeris squarrosa	"	"
Polygonatum giganteum (7 ft)	"	"
Silphium perfoliatum (7 ft.)	"	"
Euphorbia preslii	"	"
Lophanthus scrophulariaefolius	"	"
Negundo aceroides (2 ft. diameter)	"	"
Lythrum alatum	"	Walpole Island.
Polygala sanguinea	"	"
Baptisia tinctoriæ (fields)	"	"
Silphium terebinthinaceum	"	"
Tradescantia sp (?)	"	"
Galium verum	Mr. Bond	Port Stanley.
Bidens beckii	Mr. Stephenson	Port Frank.

During the year a large number of plants have been carefully mounted, the total number now in the herbarium amounts to about 500. Mr. Balkwill has done much of the mounting. The Section intends continuing the work during the coming winter.

Early in April a fine collection of plants was received from Mr. Wm. Scott, B.A., Mathematical Master of the Ottawa Normal School. The plants were in good condition and very acceptable, as they were collected in a district very different from that surrounding London.

The Section purposes continuing its explorations, and hopes to publish a list of the plants found in this district at some future time.

C. B. EDWARDS, Sec.

REPORT OF THE GEOLOGICAL SECTION.

Regular meetings have been held by the members of the Geological Section throughout the year, and they have been, on the whole, well attended. Interest in geological work has not diminished, and the meetings have often been the scene of lively discussion.

The course of study has been based on Professor Geikie's geological works, and articles in newspapers and magazines have received careful attention. The work has been agreeably helped forward by the fact that the fine collection of specimens belonging to our Chairman has always been open for the use of the Section, and they have proved invaluable for the purpose of illustrating the subjects before the section.

The members have frequently been out on excursions and have secured many interesting specimens. One of the most interesting outings occurred a short time ago, when the members were accompanied by Professor Seaborne, of Hellmuth Ladies' College, who gave some interesting and valuable hints as to the best methods of working up the geology of the London district. Those of the members who spent their holidays away from home took the inevitable hammer with them, and secured many interesting examples of the life of former ages. The Chairman particularly worked up the Niagara Falls locality, and promises to furnish the Section with his observations. There are now few parts of the district immediately around London that have not been explored.

London is in an interesting district from the fact that it appears to be directly in the line of the great stream of ice which swept the northern part of the continent in the Pliocene age, and the detritus from many different geological areas are scattered plentifully around. The age to which the rocks here belong is the Devonian, but they have been covered so deeply with the glacial drift that they reach the surface in but few places. Probably the finest specimens of the trilobite, *Phacops bufo*, found in Canada have been procured here, while the race of Orthoceratidæ is well represented in this immediate vicinity. Corals are especially abundant and some fine specimens have been secured.

One of our members contemplates the arrangement of a list of Devonian fossils found around London, and hopes to be able to present it to the Society at the next annual meeting.

It is with pleasure that we learn that Mr. Johnson Pettit, to whom this Society is so much indebted, is now turning his attention to geology, and we hope to have his co-operation in the future.

S. Woolverton, Chairman. J. L. Goodburne, Secretary.

REPORT OF THE MICROSCOPICAL SECTION.

I have much pleasure in presenting the annual report of our Section for the year ending August 31st, 1892:

It is now two years since this Section was organized, and we can look back with pleasure upon the work of the past. Although our membership has not increased to any great extent during the last year, yet great interest is still manifested by all the members, who are rapidly gaining experience in the manipulation of the microscope and the preparation of objects.

During the past year public interest in our Section has greatly increased, as the report of our outside meetings will show. On March 3rd the Section was privileged to give a microscopical demonstration at the annual meeting of the East Middlesex Teachers

Association. The Section was again invited to the Hellmuth Ladies' College and was highly appreciated. Mr. Merchant, at the request of some of our members, very kindly granted us the use of the magnificent projecting microscope belonging to the Collegiate Institute.

The Principal gave a very interesting lecture on projection, explaining and illustrating the elementary laws of light and their application to projection.

Thirteen meetings were held last season. Total membership is 12; average attendance 9; visitors 8.

The subjects of the various evenings during the season were as follows:

Oct. 30th: Fertilization and Growth of Ferns.—Mr. Foot.

Nov. 13th: Examination of the results of an outing, all taking part.

Nov. 27th: Examination of Fungi. Family Erysiphæ.—Prof. Dearness.
Those studied were Erysipha Lamprocarpa on Hydrophyllum.
Uncinula clintonii on leaf of Basswood.
Phallactinia on leaf of Dogwood.

Dec. 11th: Examination of Fungi was continued on six other specimens.—Prof. Dearness.

Dec. 26th: How to find and classify Diatoms.—Prof. Bowman.

Jan. 15th: Life, History and Classification of Diatoms.—Prof. Bowman.

Jan. 29th: Methods of mounting Diatoms.—Prof. Bowman.

Feb. 5th: Fertilization and Growth of the Phanerogams.—Mr. Rennie.

Feb. 19th: Mounting of Seeds and Pollen.—Mr. Rennie.

Mar. 5th: Light and its application to the Microscope.—Prof. Dearness.

April 1st: Microscopical Projection.—Principal Merchant.

April 15th: Examination of Frog Spawn.—Prof. Bowman.

April 29th: Fungi.—Prof. Dearness.

All which is respectfully submitted.

William H. Foot, Secretary.

REPORT OF THE ORNITHOLOGICAL SECTION FOR THE YEAR 1892.

Mr. President and Members of the Council:

During the past year the Ornithological Section has held a number of meetings, at which many interesting facts have been noted and some new ones brought to light. During the spring months a combined record was kept of arrivals from the south, showing that 37 species were observed by the members in the first three months, 42 in April and 58 in May, against 36, 38 and 40 respectively for the year previous.

Several of the most interesting notes of the year I may perhaps be permitted to refer to briefly. First in order is the winter visitation of Crossbills. These were observed by all the members in March, April and May, the 30th of May being the last date of observation, when ten were seen. This influx included not only Red Crossbills, but also the rarer Whitewings in quantity, and one lot was seen, and two taken, of a larger form, *Loxia curvirostra*, Bendirei, which is regarded as a variety intermediate between the Mexican and the Red Crossbills, and has not, we believe, been recorded for Ontario before.

Another rare species which was noted in some quantity is the Bay-breasted Warbler, which is usually scarce, but this year appeared in good numbers, being first discovered by one of our most energetic members right in the city, and subsequently found on several

morning excursions. It is probable we should be able to report the breeding of the Least Bittern in our county had it not been for the rapacious boy, who captured the pair. They were observed June 4th, and captured a few days later, and on visiting the locality, a thorough search by one of our members showed a nearly finished nest, probably of this species. The take of the season, however, was the Cape May Warbler, hitherto unknown in Middlesex County, though eagerly sought for during many years. The first specimen was discovered in the High School grounds, by the energetic member previously referred to, who studied the bird with creditable zeal for many minutes, and subsequently selected the species from a series of unnamed skins, only to be the more sorry he could not secure it when he was informed of its identity. All doubts which might have been cast on this record were cleared up by the capture of a pair, male and female, by a boy with a slingshot the next day near the same place The members of section regard this as the most important record of the year, and are proportionately proud of it. Our Plover Mills representative, with the assistance of Mr. Joseph Beck, secured a number of specimens of Lincoln's Sparrow, which had hitherto been claimed for the county on the strength of a single specimen taken years ago in the fall. Possibly it may prove, like the Fox-colored Sparrow, to be not so very rare now that we are getting acquainted with it.

Less interesting because somewhat out of the Section's range was the result of a visit of a member to Lake Wawanosh, near Sarnia, where he secured two specimens of the short billed Marsh Wren, of which probably ten or a dozen specimens were seen. They had not been previously reported in such numbers from anywhere in Ontario, although once erroneously reported near Ottawa.

In nesting records, the only one of special interest is the finding of a nest of the Carolina Rail on the outskirts of the city, with seven eggs; this being the only addition we have to make to the list of birds known to breed in Middlesex county, which was submitted with our last annual report. During the coming year we hope to open a large ledger for the birds of Middlesex in which all the notable occurrences with regard to each species shall be inscribed, thereby getting the result of our work into permanent form and making a good basis for any special investigations the Section may take up in the future.

W. E. Saunders, Chairman.

MONTREAL BRANCH OF THE ENTOMOLOGICAL SOCIETY.

The following is the Nineteenth Annual Report of the Council of the Montreal Branch of the Entomological Society of Ontario:

The Council beg to submit the following report of the Branch for the year 1891-92.

During the past season nine meetings have been held, most of which were well attended, and the following papers have been read:

1. Notes on Nematus pallidiventris—Rev. T. W. Fyles.
2. Some little known Canadian Coleoptera.—J. F. Hausen.
3. Occurrence of Platynus rugiceps at Montreal.—J. F. Hausen.
4. Hepialus thule.—H. H. Lyman.
5. Notes on some species of Halisidota.—H. H. Lyman.
6. Notes on the genus Lithophane.—A. F. Winn.
7. Entomological Questions.—A. F. Winn.
8. Pamphila Manitoba and its varieties.—H. H. Lyman.
9. Danais Archippus.—A. F. Winn.
10. Notes on rearing Pyrameis Atalanta.—H. H. Lyman.
11. The genus Grapta.—H. H. Lyman.
12. Notes on Hemiptera.—J. F. Hausen.

Two new members have been added to our roll, viz., Messrs. Lachlan Gibb and J. W. Cushing, but three of our old members have resigned owing to continued absence from the city, and the death of our esteemed vice-president, Mr. F. B. Caulfield, has caused a great gap in our ranks which it will be difficult to fill. He was one of the founders of this Branch, and has taken the greatest interest in its welfare through all its vicissitudes during the past nineteen years. At our meetings he has read over forty original papers, and being an enthusiastic and pains-taking entomologist, the loss to the Branch is a very heavy one.

The Council would again urge the members to do all in their power to increase the interest in our meetings by getting as many new members as possible, and by bringing to the meetings specimens and notes on insects.

A large amount of work might easily be done during the coming summer on the neglected orders, Neuroptera, Hemiptera and Diptera, and we would suggest that each member should study at least one order besides his specialty and thus aid in increasing our knowledge of some of the many very common species of which at present we know little or nothing.

The report of the treasurer shews a balance on hand of $17.08.

Submitted on behalf of the Council,

H. H. Lyman, President.

The following officers were elected for the ensuing year : President, H. H. Lyman ; Vice-President, W. C. Adams ; Secretary-Treasurer, A. F. Winn ; Council, J. F. Hausen, Chas. Jackson.

After the reading of the foregoing reports was completed Mr. Harrington gave an interesting account of a visit which he and Mr. Fletcher had made to Sudbury this summer, and exhibited some rare and remarkable specimens that they had found in that locality.

Mr. Fletcher gave an entertaining description of a trip to Nepigon, north of Lake Superior, in quest of eggs of the butterfly, *Chionobas Macounii*. No eggs of that species were obtained, but many interesting observations were made. Eggs of *Nemeophila selwynii* were secured, and the larvæ bred from them were described. *Grapta faunus* was bred from larvæ found on *Alnus viridis*, *Salix discolor* and *Betula papyrifera*, and an undescribed parasite was also reared. *Grapta progne* was also reared from larvæ on *Betula papyrifera*. *Colias interior* was mentioned, and the food plant was stated to be willow (from the observations of Mr. T. E. Bean in the Rocky Mountains). Mr. Fletcher was of the opinion that it was also *Vaccinium*. Specimens of two western species of Argynnis, *A. cipris* and *A. electa* were taken at Nepigon, and the occurrence there commented on. *Lycæna lucia* was taken and an addition made to its food plants in the flowers and seeds of *Acer spicatum*. *Carterocephalus mandan* is not uncommon at Nepigon in roadways running through low woodlands. Eggs had been secured on grasses and several larvæ were being bred. *Nisoniades icelus*, common at Nepigon, was being bred from eggs laid on the upper side of the leaves of *Salix cordata*. The larvæ were found to exhibit different temperaments, one particular specimen being described as "very bad tempered." Some beetles had been collected, and the oviposition of *Myodites zeschii* in the unopened flowers of *Solidago canadensis* was described. An interesting Mordella had been taken on a white fungus growing on an old wharf, but the species did not seem to answer to any of those in the available literature. Species of Donacia, Leptura and some Carabidæ had been collected. *Trirhabda convergens* had been found abundantly on asters and solidagos. Of Hymenoptera many interesting species had been secured, *Abia kennicottii* amongst them, and several specimens of *Trichiosoma triangulum*.

The meeting adiourned at 10 p.m.

THURSDAY MORNING, SEPTEMBER 1st.

The meeting was called to order by the President at half-past 9 o'clock.

The Rev. T. W. Fyles gave an account of a gall that he had found upon a White Aster (*Diplopappus umbellatus*). Mr. Fletcher in commenting upon it expressed the hope that Mr. Fyles would be able to work up its life history completely.

A paper by Mr. H. H. Lyman, of Montreal, on a "Trip to Mount Washington in New Hampshire" was then read by the President (see p. 32.)

Mr. Fletcher described some of the many difficulties which beset the entomologist in his efforts to rear larvæ from the egg to the imago state. An interesting discussion upon galls was then entered upon, in which most of the members present participated.

The President, Dr. Bethune, gave an account of his observations of insect life in Bermuda during the month of March last. He stated that he was most struck by the remarkable absence of insects of all descriptions. Not a single butterfly was to be seen and only one or two moths; after a diligent search under stones, etc., the only beetle that he found was the red and black Dung-beetle so common in Canada (*Aphodius fimetarius*), which he found in some cow droppings in a pasture field. Cockroaches (*Blatta Americana*), were abundant, having been brought, no doubt, in ships to the islands; a much larger species, *B. Maderensia*, was also occasionally seen. The common wasp (*Polistes Canadensis*), was found making its comb, without any protecting nest, on the leaves or branches of trees; honey bees were numerous and several species of ants, but no other Hymenoptera were observed. Mosquitoes and house-flies were common but not sufficiently numerous to be annoying, and several kinds of spiders. Great complaints were made of the difficulty of growing peaches on the islands owing to the attacks of an insect; in "Insect Life," vol. iii, p. 6, this is stated to be the maggot of a Dipterous fly (*Ceratitis capitata*, Wied.) The fruit was observed in all stages of growth at the same time, but none were in perfection except a few that had been protected with gauze netting. The fly is said to attack oranges also, but this fruit has been virtually exterminated in the Bermudas by a Scale-insect (*Chionaspis citri*), which was accidentally introduced in a shipload of oranges some years ago. Through the kindness of the Rev. W. G. Lane, Dr. Bethune had obtained three specimens of Sphinx moths, which he exhibited, viz.: (1) *Chærocampa tersa* Drury, found also in the Southern States and West Indies; this beautiful hawk-moth is distinguished by its graceful shape and long pointed body; it is of a light-brownish yellow colour, the hind wings being black with a marginal row of wedge-shaped yellow spots. The larva is said to feed on Button-weed (*Spermacoce glabra.*) (2) *Phlegethontius* (*Sphinx*) *cingulata*, Fab., a large grey hawk-moth, with the hind wings shaded with rose colour and five spots of the same colour on each side of the abdomen. It is found in the West Indies and northwards. The larva feeds on the Sweet potato and Convolvulus. (3) A large White Sphinx, probably *S. tetrio*, which was taken by Mr. Douglas Hollis in his garden at Hamilton, Bermuda. One of the greatest pests to farmers and gardeners on the Islands is the "Broken-tail Snail" (*Rumina decollata*, Linn,) which has a singular elongate spiral shell with the smaller end abruptly truncate. It seems to swarm everywhere and is very destructive to vegetation.

Mr. Moffat presented a paper on "The power of insects to resist the action of frost" (see p. 35.)

The following insects were exhibited by Mr. Fletcher:

1. *Liparocephalus brevipennis*, several specimens. This is an extremely rare Staphylinid, which had been received among other varieties from Rev. J. W. Keen, of Massett, Queen Charlotte Islands. The opinion was expressed that this and the other described species of the genus *L. orbicollis* were merely color varieties of one species. Specimens differing in color had been named under both names by Lieut. Casey, U.S.A., but he said he thought that they were probably identical, and this opinion was also concurred in by Dr. John Hamilton, to whom some of Mr. Keen's specimens had also been sent. Previous to Mr. Keen's collection these two species were only represented by the unique types.

2. *Sphærites glabratus, Pelates latus*, two Sylphids, also from Queen Charlotte Islands.

3. *Myodites Zeschii*, from Nepigon.

4. *Gortyna immanis*, the collar worm of the Hop, several specimens, male and female, of the moth together with pupæ and larvæ preserved in alcohol, were exhibited and a statement made of injuries done to hop gardens in Prince Edward county.

5. *Cantharis Nuttalli*, a beautiful blister-beetle from the North-West Territories, where it had been abundant and injurious in the perfect state during last summer, but probably did good service in the larval condition by feeding on locusts' eggs.

After spending some time in the examination of specimens brought by members, and contained in the Society's cabinets, and in comparing notes on various matters of entomological interest, the meeting, which was greatly enjoyed throughout by those who were present, was brought to a close.

A VISIT TO THE CANADIAN HAUNTS OF THE LATE PHILIP HENRY GOSSE.

By Rev. Thomas W. Fyles, South Quebec.

One stormy night in the winter of 1863 I was visiting at a friend's house in Laprairie when amongst the books on the table I found a copy of the *Canadian Naturalist*. I took it to my room and was fairly carried away with it I forgot the lateness of the hour; I heard not the beating of the storm upon the roof and window; I was transferred in imagination to the township of Compton, and wandered with Gosse along Bradley's Brook, and into the Brulé, and on the banks of the Coaticook. On my return to Montreal I acquired a copy of the work, which became, for a time, my constant companion.

In the *Canadian Naturalist* are to be found, as might be expected, many mistakes and imperfections; but it is, notwithstanding these, a charming work. The author seems to have thrown his life into it, and to awaken with a magic touch responsive feelings to his own in the reader's bosom; and—to speak after a heathen fashion—the book is redolent with the worship of Pan.

My interest in Gosse was increased during eleven years residence in Cowansville, in the Eastern Townships; for, during the greater portion of that time, I had for my near neighbor, and intimate acquaintance, Mr. G. E. Jaques, with whom Gosse came from Newfoundland, and with whom he lived in the summer seasons of his stay in Canada.

Of the persons who knew Gosse in his Canadian days but few survive, and the traces of his residence here are rapidly disappearing. It has been thought well, therefore, that I should place on record such reminiscences of him as I have been able to gather.

I made my first visit to Compton in 1864. The building in which Gosse taught the "Winter-school" was then much as it was in Gosse's day; and it is still substantially the same. It is a frame structure, in the ordinary village style, painted red, "picked out" with white. It stands at the outskirts of the village on the Hereford road. While I was examining it on the occasion referred to, I was joined by Mr. Logee—commonly called "Major Logee." We fell into conversation, and I asked him if he had known Gosse. "Why, yes," he said, "He boarded at my hotel. Come to the house!" The house was within sight, a few rods distant, and standing alone.* It was a commodious two-story building with a double verandah.

Mr. Logee spoke of Gosse's quiet and studious habits, and evidently entertained a pleasant remembrance of his young boarder of long ago; "but," said he, "the people here used to speak of him as *that crazy Englishman who goes about picking up bugs.*" One sentence in the *Canadian Naturalist* shows that Gosse was quite at home in the

* It still stands, but now in a street of cottages. The major has been dead for some years.—T. W. F.

major's hospitable dwelling. On page 45 we find him saying, "It is pleasant to think that we have a comfortable home and a cheerful fire to look forward to." In the long winter evenings he here recorded the observations made in the course of the day. We can fancy that we see him, in the retirement of his chamber, holding the candle at the window, and noticing the white flakes descending in the "darkness visible" (see *Can. Nat.* page 30), or musing over the "frosted flowers" on the panes (p. 29), or on the sudden formation of ice-needles, in the chilled water on the wash-stand, when agitated by the immersion of his hands (p. 351).

A few days ago I went to see my friend Quartus Bliss, Esq., of Compton, with the express purpose of gaining information concerning Gosse. We drove through the village of Compton but could then learn of only two persons who remembered him. One, a lady, was unfortunately from home; the other, when I mentioned Gosse, said, "Oh, yes! I remember him. I went to school to him. *He* couldn't teach school *any*, to suit this country." "Is that so?" I said, "but why?" "Why?" he retorted. "Well, one day when it was snowing, he took a slate and caught the snow-flakes and made drawings of them." And youthful impressions were so strong in the man, and the act had appeared so ridiculous to him in his youth that, at the remembrance of it, he laughed—and laughed —and "laughed consumedly." And the ludicrousness of this man's laughing at Gosse made me laugh, and my friend Bliss laughed for sympathy. At length, by way of creating a diversion in Gosse's favor, I said, "I think I can show you a copy of the drawing he made that day." And I took the *Canadian Naturalist* from my pocket and shewed him the cut on page 27. He seemed somewhat taken aback that anything Gosse had done should be reproduced in a book, but he soon returned to the charge: "In his garden at Smith's Mills he planted poison-poke!" (p. 233). I was, of course, duly silenced. The character of a man who could plant poison-poke in his garden was beyond redemption. I might have told of gardeners setting out plants of the pickled-cabbage order for effect: but where would have been the use?

I had given Mr. Bliss a list of the places I wished to see. As we were driving through a stretch of lowland he said, "This that we are coming to is Spafford's Bridge (p. 103). Yonder was Robinson's farm (p. 188). On the hill facing us was the Pierre Barker place, (p. 298): the house is still standing; the farm was the best in the neighbourhood in Gosse's day. To the left, here on the flat, lived Adolphus Barker a brother of Pierre, and a notorious scoundrel. The foundations of his house can still be traced."

Having ascended the hill, and passed the old Pierre Barker house, and the fine modern residence of Mr. Vernon to whom the surrounding properties now belong, we came to a turn in the road. "Here" said my friend, "was the Well's place, formerly owned by Mr. Jaques; and yonder you can trace the old main road to Sherbrooke, which has long been abolished." It was all before me: The road we were on was the "village road" (p. 2), the road that the horseman in the vignette of Gosse's title page is pursuing. Looking down from that road, immediately to the right, in the corner unmarked in Gosse's sketch, I saw the shattered foundations (overgrown with moss and lichen,) of the house in which he lived with Mr. and Mrs. Jaques. It had been a frame cottage, 30 by 24 ft. in size, and had stood five rods from the road. The barn, still standing, but much dilapidated, is eight rods from the site of the house. The foundations of Gosse's log barn can also be seen. Through "the marshy spot below the barn" (p. 116), from which he heard the "Breke-kekex koax-koax" of the frogs, the Grand Trunk Railway now runs, cutting the farm in halves. The maple-grove (p 227) has been felled, but stumps of the trees remain. No traces of the orchard are left. The whole of the farm is now in pasture.

The bridge over the Coaticook at the bottom of the farm, which he speaks of as "our bridge," has quite disappeared. It is remembered in the neighborhood as the "Wyman Bridge." Its position can be told only from the break in the old road at the river banks. On the rising ground beyond the river, and to the left of the old road, may still be seen the house in which dwelt Mr. Bill, (p. 267).

Pursuing our way we crossed Bradley's Brook (p. 297). To the left between the hills are the remains of the thicket through which Gosse forced a road to the Brulé beyond (p. 297). The hill (p. 303) which he ascended, and from which he saw Smith's mills and

Tilden's tavern, is now bare of trees, and is known as Flander's Hill. Tilden's out-buildings may still be seen from it; but the tavern itself was burned some years ago. Smith's mills are standing yet, dwarfed and hidden by more imposing structures. Hollis Smith, to whom these mills belonged, moved into Sherbrooke, and become the member of Parliament for that city. He has been dead for some years. The village of Waterville with its churches, public schools, post office, railway station, manufactories, etc., has grown up since Gosse left the country.

Only one man in Waterville, as far as I can learn, remembers Gosse. This is Captain Parker, (a descendant of the famous Admiral Parker), whose father owned the adjoining lot to that of Tilden's. The Captain when a boy, met Gosse in the Brulé net in hand. He remembers two things concerning him: (1) that he was clad in rough frieze cloth; (2) *that he wore remarkably clean linen.* "Biled shirts" were not common in that neighbourhood at that time.

In Waterville I parted with my friend Mr. Bliss.

Returning to the Gosse farm after a night spent at the village hotel, I found that there had been a hard frost in the night—one of those early frosts that Gosse complained of (p. 110). This had whitened the meadows and the foliage. The sun however rose bright and warm. On my way to the farm I came to a dip in the road (p. 180) with willows growing thick on either side. As I passed there was a constant pattering on the dead herbage beneath—the sun gaining strength was thawing the frost on the leaves, and drops fell

"like the first of a thunder shower."

A little runnel tinkled and bubbled over the stones by the road.side, hastening to join the Coaticook in the valley. Its banks were thick with moss. The slight sounds that arose seemed but to intensify the calm that boooded around. From the groves beyond the river were heard the whistle of the robin, and (softened by the distance) the cry of the blue jay. This spot in Gosse's day was prolific in insect life; as, I dare say, it is still. It was here that he captured the Baltimore Fritillary (*Melitæa Phaeton*), pictured on page 227 of his work.

When I reached the higher ground I turned; and what a glorious view was presented to me! A lovely rolling country opened towards the north, its rounded hills tufted with maple woods. Columns of white steam and dun smoke, rising amidst hills of more mountain-like formation, showed where the mining works of Capelton were located. Between the spot on which I stood and those distant hills was the rise, forming the middle distance, on which Tilden's tavern formerly stood. Around the spot, as in the days of Gosse, but more restricted, and now of second growth, is a stretch of woodland, which in the many hues of autumn, and lit by the brilliant morning sun, was very beautiful. The poplars were clad in richest chrome; the maples and beeches in various hues of ochre, sienna, Indian red, and crimson; while here and there a tamarack (lonely survivors of the *Nematus* raid) stood pale yellow amid the more richly coloured trees.

In the valley near me the placid Coaticook pursued its even way. The light green of the willows that fringed its banks formed the basis of a mass of foliage rising with the hill-side, in which was blended the brown-green of the white cedar, the sombre hues of the black spruce, and the brighter Brunswick green of the balsam. Here and there the boscage was broken by farm buildings and russet pastures.

Near the railway, not many rods from Gosse's farm and at a bend in the stream, was a small neglected burial-ground in which the white rounded head-stones rose amidst a tangle of brambles, golden-rod and everlastings. I walked over to it and found it recorded on one of the stones that Henry Learned died August 13th 1837. (Gosse may have attended his funeral). He was laid beside "Lovy" his wife,

Returning I found the point of view on which Gosse stood when he drew the sketch of his farm. The property having been added to a larger one, and seemingly used for pasturage only, is probably very much in the condition in which Gosse left it. The land is not particularly good—in the division Jaques seems to have had the better share.

Along the road-side are a few fine maples, doubtless the same represented in the view, increased in bulk by their fifty-three years subsequent growth. A few small clumps of cedar and spruce somewhat relieve the dreariness of the stretch of pasture land ; but the farm to-day is not one that would be chosen either for beauty or fertility.

Melancholy feelings come over one as he contemplates a ruined homestead, and thinks of the human interests that once centered therein. What aims and hopes actuated the builders of it ! Within its walls what scenes of homely mirth were witnessed, what hours of anxiety were spent, what plans for improvements were made, what disappointments were experienced ! Everything around had its uses and its history ; and now all is gone. The owners ! Their place knows them no more. Their belongings ! They are dispersed or have perished. Their habitation ! Its moss-grown foundations are all that remain of it.

With such feelings, tempered with the reflection that it was well for science that Gosse should have been disappointed, I looked upon the scene on which he entered full of high expectations. Here he toiled. Here he slowly learned the hard lesson that he had mistaken his vocation. Hope of acquiring an independence through his farm left him ; and he was at length glad to sell out at any sacrifice. The reasons for his failure are not hard to find from his own statements. Instead of dividing his land into meadow and pasture, and purchasing young stock to raise and sell at a profit, keeping only small portions of land successively under the plow—just so much at a time as he could manure thoroughly and work with comfort; he plowed up much unenriched soil, and laid out for himself much unprofitable labour. I have often wondered what he intended to do with his two acres of turnips (Life of P. H. Gosse, p. 92), without storage for the preservation of the produce, or stock to consume it, or any available market—for his neighbours would grow what they wanted of such like crops for themselves. The people immediately around him were generally of an unsatisfactory class, who would ridicule his mistakes, and endeavour to profit by his inexperience. They were "vulgar and sordid, sharp and mean." (Life of P. H. Gosse, p. 96). They were even worse than all this—they were criminal. A notorious band of desperadoes, counterfeiters and thieves, made the Tilden tavern their rendezvous. Dark hints of mysterious disappearances were whispered round. The dispersion of this gang was brought about in this way : Near Compton village resided a miserly old couple named Witcher, who had saved, what for those days was a large sum of money, $3,000. They had this secreted in a trunk, in an upper chamber of their house. The fact in some way became known to the gang ; and by means of a ladder access was gained to the room, and the spoil was secured. The old lady, hearing a noise which she imputed to the mice in the chamber, arose, opened the stair-case door, and thrust in the cat. She then retired contentedly to bed. The robbery caused a great commotion ; and one loose character, who left the neighbourhood during the stir, was followed up and induced to turn King's evidence. Several of the gang, having had timely warning, fled to the States ; but Adolphus B- ker was tried, convicted, and condemned to death. The sentence was commuted to imprisonment for life, and he was confined in the jail at Three Rivers. After his incarceration his wife told of his coming home one night on horseback with a dead body in front of him, which he took to the woods and buried ; but as she had become demented (which was not to be wondered at, poor thing !) no great heed was given to her statement. She soon afterwards died. Her story however was enough to cause the neighbours—the young especially—to regard the empty house with dread. One circumstance in regard to it is still narrated : I have said that the house stood back in the field. A person passing along the road one night noticed a pale unearthly light in one of the windows. He hurried away in fear. The light was seen by others on subsequent nights ; and at length a few of the boldest of the neighbours resolved to investigate it. They came to the gate leading to the house. And certainly, there in the window was the light ! They brought their courage to the sticking point and made a rush to the building ; but, as they drew near, *the light vanished !* They could hear no sound, nor could they find next day any traces of visitors, earthly or unearthly. It was not till some time afterwards that they discovered that the mysterious light was only seen when a certain room in another house in the distance was lit up—that it was, in fact, a mere reflection.

After fourteen years' imprisonment Barker was released. About the same time was liberated a French-Canadian woman who had occupied an adjoining cell. This woman Barker sought out and married, and the pair crossed over into the States. It is said that by loosening the bolts which secured the ends of a large box stove built into the partition wall they had been able to keep up an acquaintance for some time previous to their liberation. The jail arrangements of those days were of a primitive order. I have been told that, in the States, Barker resumed his nefarious practices, and eventually paid the penalty of his crimes on the scaffold.

In the Life of Gosse, page 103, we read, "During the autumn" (of 1837) "he was vexed and disturbed by having to appear in court to give evidence in a criminal case against one of his few neighbours." Could this have been the case I have been recording?

Gosse alludes, in the preface to the Canadian Naturalist, to the "stormy politics and martial alarms of the times." A few words will shew the condition of affairs in his neighborhood. It was the period of the rebellion, and as an inroad of American "sympathizers" was expected, the loyal inhabitants of the Townships felt called upon to adopt precautionary measures. At a meeting of militia officers held at Frost Village, at which Colonel Knowlton presided, it was resolved to send three of the leading men of that part of the country as a deputation to solicit supplies of arms and ammunition from the military authorities at Montreal. Accordingly Colonel Knowlton, Major Wood and Abijah Wood were sent, and their errand was completely successful. Large supplies were shipped (by way of the St. Lawrence and the Richelieu) to Philipsburg, on Missisquoi Bay. Here they were met by numerous teams driven by the yeomen farmers of the district. Good men and true from all the country round turned out to guard the valuable consignment. Night came on, and under cover of the darkness, an armed force of sympathizers from Swanton, Vermont, attacked the convoy at More's Corner. The enemy were, however, beaten off and dispersed Volunteer companies, equipped with the arms thus acquired, were soon formed in all that section of country. Captain Wood, of Shefford, had under his command a body of cavalry numbering 85 men. Captain Savage, of the same place had 100 infantry. Captain Becket, of Sherbrooke, had a troop of horse and Captain Gilman, of Stanstead, another. In the quota of men sent from Compton Gosse's friend, Amos Merril (p. 40) was sergeant. It is rather to be wondered at that Gosse, amidst the general enthusiasm, did not take a more active interest in the military movements of the times. Perhaps it was with him as with that good bishop in the middle ages, against whom his knights and censitaires complained, that he was "a man of peace and not at all valiant." The action of the United States authorities at this crisis was prompt and judicious. Troops from the Southern States were brought up and stationed along the American side of the border, and this doubtless prevented much harm. The troops stationed at North Troy, Vermont, were brought from Florida.

Two retired English officers were sent to superintend operations and watch the line on the Canadian side. These men knew but little of the country, and amusing reminiscences of them are still told in our country houses. For instance: One of them was spending the night (a clear, cold winter night) at Hatley—the *Charleston* of Gosse (p. 95). He heard repeatedly that sound (familiar enough to Canadian ears,) which accompanies the sudden loosening of a shingle-nail by the frost. The gallant colonel arose in consternation and dressed himself in haste, convinced that because of his august presence sympathizers were firing upon the house.

One of the young men who drove a team at More's Corner, and who afterwards joined Captain Wood's troop of cavalry, was Mr. Calvin L. Hall, a son of one of the leading men of East Farnham. Mr. Hall being well mounted was chosen as a body-guard for the English officer above mentioned, and in this capacity did some hard riding. On one bleak day he, on horse-back, accompanied his superior, without stoppage, from East Hatley to Frost village, a distance of 36 miles. The Englishman, well wrapped up in buffalo robes, drove his team "at the jump," and viewed every piece of bush that he passed with suspicion. Mr. Hall is now Lt.-Colonel Hall, of the 52nd "Brome" battalion of Light Infantry.

Of Compton people contemporary with Gosse, besides Major Logee, I saw on my first visit to the village, Colonel Pomeroy, magistrate; A. V. Kendrick, merchant, and Nathan Merrill, hotel-keeper. All are now dead—as are all whom Gosse mentions in his book. Of these the last survivor was Mrs. Bill, who died at Waterville about six months ago. Ann Heap, widow of G. E. Jaques, died on December 30, 1891 in her 84th year. Her husband had died on the preceeding 12th of July, aged 84 years. The remains of this worthy couple rest in Mount Royal cemetery.

I have said that in Gosse's work there are many mistakes. One of the most remarkable of these is his supposition that the piping of the tree-frogs in early spring was produced by lizards (p. 94). He describes the frog (p. 266), but seems to have rejected the idea that this creature produced the sound, and many persons still, having read his book, have strong faith in the lizards. Good old Bishop Oxenden once spoke to me of the "whistling lizards." I begged to assure him that the "whistling" was produced by frogs —that I had kept the creatures and knew certainly that this was the case. I even showed him drawings I had made of the frog with its throat distended preparatory to the emission of the sound. But all was of no avail. *Gosse* had said that he believed the sound to be that of lizards. Gosse was once contradicted to his face by believers who did not know him personally.* That my statement should stand for a moment beside an expressed opinion of his was not to be thought of. And the good old bishop in his last work. the "History of my Life," page 142 (by a double error; by a strange transposition of sight for sound) says, "There" (i. e. in Canada) "are few reptiles, excepting lizards, which seem to take pleasure in exhibiting their antics in public."

Gosse must often have listened to the chorus from the swampy spot below his barn; the *peep-peep* of the tree-frog, the *croak* of the meadow-frog, the *tr-r-r-r-r-ill* of the toad and the *bomp bomp* of the bull-frog. A lady-friend of mine compares the reptile assembly to a noisy household, in which the little children are crying to be put to bed, and the elder ones scolding, while the mother endeavours to still their clamour with a *hu-s s-s sh*, and the father expostulates with a grumpy voice.

From the Fauna of Compton County some of its most interesting forms have vanished since 1838. The caribou *(Cervus tarandus)* and the Virginian deer *(Cervus Virginianus)* have long disappeared, and with them their natural foes the wolf *(Canis lupus)* and the puma *(Felis concolor)* The moose *(Cervus Alces)* approaches no nearer than the swampy portions of Megantic County. and the black bear *(Ursus Americanus)* than Mount Orford and the neighboring hills of Sutton and Bolton. The cry of the lynx *(Felis Canadensis)* is seldom heard. The last pair of beavers were shot in the Brulé fifty years ago. That objectionable animal, the skunk, *(Mephitis Americana)*, so admirably delineated on page 254 of the Canadian Naturalist is, however, still quite sufficiently abundant. Gosse evidently, was well acquainted with it. By way of affording a contrast to his distressful account, I may say that a year ago a clergyman from England came to see me. He was fond of natural history and was seeking information. In the evening, happening to go to the door, I found that a skunk had crossed the lawn in front of my house. I called my friend and said, "Here is a perfume that you should know of." He sniffed and exclaimed eagerly, "What is that? What is that? *Do you know I rather like that.*" The otter (*Lutra Canadensis*) and the salmon (*Salmo salar*) are gone from the St. Francis, the Coaticook and the Massawippi. The "Salmon River" no longer bears an appropriate name, but the bald eagle (*Fulco leucocephalus*) still haunts the lakes, and the snowy owl (*Strix nyctea*) and the great horned owl are still occasionally heard. The cry of the former resembles *Bomp-bomp*, that of the latter is very accurately given by Gosse as *Ho! Oho! Oho! Waugh ho!* (p. 177). The sound—so mysterious to Gosse (p. 92)—of the saw-whet owl (*Nyctale acadica*) still rises from the woods in the summer evenings. I have not seen the passenger pigeon (*Columba migratoria*) since 1864, and the scarlet tanager (*Tanagra rubra*) has become scarce.

*On one occasion, I recollect, at Livermead, we came across a party of ladies who were cackling so joyously over a rarity they had secured, that curiosity overcame our shyness, and we asked them what they had found. They named a very scarce species, and held it up for us to examine. My father, at once, civilly set them right; it was so-and-so, something much more common place. The ladies drew themselves up with dignity, and sarcastically remarked that they could only repeat that it *was* the rarity, and "Gosse is our authority."—*Life of P. H. Gosse*, p. 288.

None of the insects mentioned by Gosse, as far as I can identify them, would now be considered rarities, except the "Chequered Skipper" (p. 219), the "Pearly Eye" (p. 246), and the "Dragon Moth" (p. 248).

From the index to the *Canadian Naturalist* we find that Gosse was acquainted with 26 of our butterflies and 43 of our moths, besides a variety of beetles, bugs, flies, etc. The Lepidoptera are given below under the names used by Gosse and (as far as I have been able to identify them) the names in the "Toronto List."

Names used by Gosse.	Names according to the Toronto List.
Tiger Swallow-tail (Papilio Turnus.)	Papilio Turnus, Linn.
Black Swallow-tail (P. Asterius.)	P. Asterias, Fab.
Clouded Sulphur (Colias Philodice.)	Colias Philodice, Godt.
Grey-veined White (Pontia Oleracea.)	Pieris Oleracea, Bd. var Frigida.
Archippus Butterfly (Danais Archippus.)	Danais Archippus, Fab.
Pearl-border Fritillary (Melitœa Myrina.)	Argynnis Myrina, Cram.
Pearl-crescent Fritillary (Melitœa Tharos.)	Phyciodes Tharos, Drury.
Silver-spot Fritillary (Argynnis Aphrodite.)	Argynnis Aphrodite, Fab.
Great Spangled Fritillary (Argynnis Cybele.)	Argynnis Cybele.
Green Comma (Grapta Progne.)	Grapta Faunus, Edw.
Orange Comma (Grapta C. Album.)	Grapta Comma, Harr.
Grey Comma (Grapta C. Argenteum.)	Grapta Progne, Cram.
Violet Tip (Grapta C. Aureum.)	Grapta Interrogationis.
Camberwell Beauty (Vanessa Antiopa.)	Vanessa Antiopa, Linn.
Forked Butterfly (Vanessa Furcillata.)	Vanessa Milberti, Godt.
Compton Tortoise (Vanessa J-album.)	Grapta J-album, Bd.
Banded Purple (Limenitis Arthemis.)	Limenitis Arthemis, Drury.
Eyed Brown (Hipparchia Transmontana.)	Satyrus Nephele, Kirby.
Pearly Eye (Hipparchia Andromache.)	Debis Portlandia, Fab.
Copper (Lycœna Phleas.)	Chrysophanus Americana, D'Urban.
Spring Azure (Polyommatus Lucia.)	Lycœna Lucia, Kirby.
Black Skipper (Thymele Brizo.)	Thanaos Brizo, Bd.
Chequered Skipper (Pamphila Paniscus.)	Carterocephalus Mandan, Edw.
Yellow-spotted Skipper (Hesperia Peckius.)	Pamphila Peckius, Kirby.
Tawny-edged Skipper (Pamphila Cernes.)	Hesperia Taumas, Fab.
Twin-eyed Hawk-moth (Smerinthus Geminatus.)	Smerinthus Geminatus, Say.
Zebra Hawk-moth (Sphinx Kalmiæ.)	Sphinx Kalmiæ, A & S.
Grey Hawk-moth (Sphinx Cinerea.)	Sphinx Chersis, Hubn.
Six-spotted Blue Hawk-moth (Alypia Octomaculata.)	Alypia Langtonii, Coup.
Humble-bee Hawk-moth (Sesia Pelasgus.)	Hemaris Thysbe, Fabr.
Belted Hawk-moth (Ægeria———)	
Buff Leopard (Arctia Isabella.)	Pyrrharctia Isabella Abb. & S.
Muff (Lophocampa Tesselaris.)	Halisidota tessellata, A. & S
Panther (Spilosoma Acria.)	Leucarctia acræa, Drury.
Brindled (Biston Hirtarius.)	Eubyja cognataria, Guen.
Streaked Hooptip (Platypteryx Erosa.)	Platypteryx arcuata, Walk.
Lemon Beauty (Angerona Sospeta.)	Angerona crocaotaria, Fab.
Pea Green (Chlorissa putataria.)	
Grandee (Geometra Clemataria.)*	Procherodes clemitaria A. & S.
Rhinoceros (Herminia——)	
Belle (Spilosoma Virginica)	Spilosoma virginica, Fab.
Ruby Tiger (Pragmatobia Fuliginosa.)	Phragmatobia rubricosa, Harr.
Rose-breasted (Dryocampa Rubicunda.)	Dryocampa rubicunda, Fab.
Snowy (Spilosoma——)	Hyphantria textor, Harr.

*I have taken *P. transversata* Drury, in the Townships but not *P. clemitaria*.—T. W. F.

Names used by Gosse.	Names according to the Toronto List.
Angleshades (Phlogophora Meticulosa.)	Trigonophora periculosa, Guen.
Orange Band (Pyralis——)	Crambus Girardellus, Clem.
Veneer (Crambus.)	Crambus.
Silver-spotted Buff (Pygæra Gibbosa.)	Edema albifrons, A. & S.
Gamma (Plusia Gamma.)	Plusia precationis, Guen.
Royal Tiger (Arctia Virgo.)	Arctia virgo, Linn.
Dragon (Hepialus Argenteo-maculatus.)	Hepialus argenteo-maculatus, Harr.
Cerulean (Ctenucha Latreilliana.)	Ctenucha virginica, Charp.
Pink Arches (Thyatira Scripta)	Habrosyne scripta, Gosse.
Twin Goldspot (Plusia Iota.)	Plusia bimaculata, Steph.
Clifden Beauty (Xerene albicillata.)	Rheumaptera ruficillata, Guen.
Spotted Lemon, or Lemon Beauty.	
Drab Plume (Pterophorus——)	(Pterophorus marginidactylus.)
Vapourer (Orgyia Antiqua.)	Orgyia nova, Fitch.
Gold and Silver (Plusia Festucœ.)	Plusia Putnami, Gr.
Green Gold (Plusia Chrysitis.)	Plusia balluca, Gey.
Spangled Orange (————)	(Calopistria monetifera.)
Furbelow (Calyptra Libatrix.)	Scoliopteryx libatrix, Linn.
Griseous (Cerura Hastulifera.)	Cerura cinerea, Walk.
Apple Moth (Tethea——)	Cacœcia rosaceana, Harr.
Green Emperor (Saturnia Luna.)	Actias Luna, Linn.
Eyed Emperor (Saturnia Polyphemus.)	Telea Polyphemus, Cram.
Crimson Underwing (Catocala——)	Catocala concumbens Walk.
Winter (Cheimatobia Vulgaris.)	Operophtera borealis, Hubn.

The Entomological portions of the *Canadian Naturalist* are the weakest. If Gosse had had a little more knowledge, had taken a little more pains, and had scrupulously pared away all such provoking passages as "I shook off a black Sawfly (Tenthredo), two green Waterflies (Perla Cydippe), two Cimbices (Pentatoma——), several Chrysomelidæ with soft horn-colored elytra (Crioceris——), and another very little species of a metallic purple (Phyllodecta Kitellina)," (p. 184), which, while they have a show of knowledge, really betray the lack of it, men would have delighted to place the *Canadian Naturalist* with such classics as Kirby and Spence's Entomology, White's Natural History of Selbourne, etc. As it is, it is hardly likely that a re-print of the book will be called for; though the copies of it that remain with us are highly valued.

NOTES ON THE RARER BUTTERFLIES OF THE PROVINCE OF QUEBEC.

By Rev. Thomas W. Fyles, South Quebec.

At the annual meeting of the Entomological Society of Ontario, held in October, 1885, I read a paper on such of the Butterflies of Quebec as were then known to me. Other species have since come under my observation, and I beg to offer a few remarks upon them. The first in order is:

Colias interior, *Scudder*. I took this insect, in September, 1891, on the Heights of Levis. It seemed to be rather plentiful. I looked for it carefully in the spring of this year, but not a specimen was to be seen, nor have any since made their appearance. One would suppose that a chance irruption of the species had occurred—that prevailing winds had brought them southward. *Interior* differs from *Philodice* in that it lacks the row of reddish brown dots near the hind margins, on the underside of the wings. The black spot on the fore wings of *Philodice* is represented by a faint oval ring in *Interior*; and in the females of the latter the black border to the secondaries is wanting. I took one or two albinos of the species.

ARGYNNIS FREYA, *Thunb.* I captured, in the middle of the Gomin swamp, in September, 1887, one specimen of this rare insect. I am inclined to think that it was a straggler from some mountain swamp to the north of us. The only other specimen that I know to have been taken in Quebec Province was shewn to me, many years ago, by the late Mr. Caulfield. He received it, if I am not mistaken, from Mr. Bowles, who was then living in Quebec. My insect is in good condition, but is less bright than one of the same species from the North-west, shown to me by Mr. H. H. Lyman. I have noticed that western insects generally are of somewhat more vivid colouring than those of the same species in the east. The markings on the under-side of the hind wings of *Freya* are angulated and very intricate. The silvery embellishments are few and have a bluish tinge. One of them near the inner edge of the wing takes the form of an elongated X.

GRAPTA GRACILIS, *Gr. & Rob.* In August, 1888, I saw a butterfly escaping from its chrysalis case which was attached to a branch of a currant bush. I captured the insect which proved to be *G. gracilis*. The chrysalis was four-fifths of an inch in length, one-fourth of an inch in width of thorax, and the same in depth where the wing-cases terminated. It had numerous pointed projections. The color was light brown, mottled with dark brown over the abdomen. The butterfly in colouring is very distinct from *Progne*. On the upper side it approaches more nearly to *Faunus*. Beneath, the basal portions of wings are of a rich warm umber with some bluish-grey patches. Beyond in striking contrast, and extending through both primaries and secondaries is an irregular pearly grey band, shaded off into the dark umber of the hind margins. The arrow-heads seen so plainly near the lower portion of the hind margin in the primaries of *Progne*, are almost deleted. The silvery curve in the hind wings is very conspicuous and forms the edge of a scallop in the dark portion of the wing.

Last year, on the 12th of June, I saw *Gracilis* ovipositing on Red Currant. I found the egg. It was cone-shaped, but slightly flattened at the top ; green—of the same shade as the leaf to which it was attached,—and it had divergent longitudinal ridges of a lighter hue. I cut the twig that I might have the egg under observation ; but it did not hatch, it seemed to dry up with the leaf.

DEBIS PORTLANDIA, *Fab.* In a paper entitled "A Day in the Woods," which appeared in the Society's 22nd Annual Report, I recorded my first capture on the 6th of August, 1890, of this beautiful butterfly. On July 3rd, 1891, I took a very perfect specimen of the species on Mount Royal. It fluttered down from a tree and lit in the fern a few yards from me. On July the 22nd of the present year I took a pair *in coitu*, at the spot on which I made my first capture. These also fluttered down immediately before me in the same heedless manner. *Portlandia* may be readily distinguished from our other "Browns" by the delicate purple blush on the underside. In size it comes between *Nephele* and *Canthus*.

CHIONOBAS JUTTA, *Hubner.* In 1885 I had not discovered the locality for *Jutta*. Of the means by which I found it and the successful efforts I made to rear the insect, accounts appeared in the *Canadian Entomologist*, Vol, XX., p. 131 and Vol. XXI., p. 13. Mr. Scudder in his important work on the Butterflies of the New England States and Canada mentions my success, but asks, "Does the pupa undergo its transformations in a cell as in *O. semidea*, or hanging like ordinary Nymphalids?" and he adds "Fyles does not tell us." He must have overlooked my second paper in which I said "The chrysalids were naked, unattached, and lay on the surface of the sphagnum." Under the head of DESIDERATA he asks, "Where in a morass mostly under water can the half-grown larva find a suitable place to hibernate, and where in the still higher waters of Spring can the caterpillar securely pupate?" These questions are easily answered as regards the Gomin Swamp. *The sphagnum rises with the water and is never submerged.* The visitor sinks in it, to the ankles in a dry season, and to the knees in a wet one ; and their are parts of it that it is well for him to avoid.

The individuals of this species that I brought to perfection passed the winter in the larval state and turned to pupæ in the Spring. Further experiments have shown that some larvæ hibernate after the second or third moult—their growth having been retarded.

This was notably the case last winter which was a remarkably open one. It may be that the larvæ have susceptibilities and powers of reservation which enable them to accommodate themselves to seasonal variations. It remains to be shewn whether the remaining stages of the backward larvæ are hastened in the Spring, that the imagos may present themselves at the usual period, or whether the larval condition of the insect is sometimes prolonged over a second season. Larvæ that I have reared to their full growth this season became sluggish in the first week of October, and by the middle of the month were quite torpid.

THECLA LÆTA, *Edw.* A specimen of this pretty little butterfly was taken in May, a few years ago, by Mr. Winn, on Belœil Mountain.

THECLA TITUS, *Fab.* On the 22nd of July last I had a stroke of good fortune. During thirty years of close observation of the insect world in this Province, I had not seen half a dozen specimens all told of *T. Titus*; but on this day, in a neglected meadow near St. David's, I came upon quite an assembly of the insects. They were fluttering about over the Hawkweed blossoms, and I captured a full series of very perfect specimens.

CHRYSOPHANUS EPIXANTHE, *Bd.* This is a swamp insect, and appears in the Gomin about the 23rd of July. I have not met with it in any other spot in Quebec Province. It appears in goodly numbers and lasts about a fortnight. It is not difficult to catch, for if the collector gets between it and the sun, the light shining upon the silvery under surface of the wings renders its flight very perceptible.

LYCÆNA COUPERI, *Grote.* On June 13th of last year I took on the Heights of Levis a lovely specimen of this charming insect. I had seen two of the kind the year before, but was unable to capture them. This year the insect has not come under my notice. On the upper side its wings are smalt blue with dark borders and white fringes. The under side, brownish grey set with white ringed, black dots, reminds one of the English *P. Acis.*

CARTEROCEPHALUS MANDAN, *Edw.* Under the name of the "Chequered Skipper" [*Pamphila Pansicus* (*l*)], Gosse in the *Canadian Naturalist* records the capture at Compton, P. Que., of this pretty butterfly. I have in my cabinet a specimen taken near Fort No. 2, Levis, in 1889 by Mr. Robert Maxwell, a promising young entomologist whose early death is to be lamented. On June 16th of this year Mr. Hanham took a specimen in good condition in a meadow near Bergerville. It was flitting low down amidst the stalks of herd's-grass. *Mandan* very closely resembles the European *Paniscus* in color and markings; but it is a smaller insect. Morris gives the expansion of wings of *Paniscus* at "about an inch and a quarter." My specimen of *Mandan* has an expansion of one inch only. Its contour too is different—more trim and slender.

PAMPHILA MANITOBA, *Scudder.* As this pretty skipper was taken some years ago by Mr. Couper, at Riviere-du-Loup *en bas*, only 116 miles from South Quebec and on the same side of the river, I have been expecting its advance for some time. On the 9th of September I captured my first specimen near Fort No. 2, Levis. On the 16th of the same month I took another, and on the 19th a third. The insect appears after the other skippers have vanished. I netted my specimens as they were reposing on the blossoms of Gnaphalium. A few days afterwards the insect was found in abundance by Mr. Hanham at a spot on the other side of the river, nine miles north from Quebec. As this is the only skipper we have in Quebec Province having the under sides of the hind wings *saye green with two irregular rows of white patches*, it can easily be distinguished.

PAMPHILA METACOMET, *Har.* I have two female specimens of this (with us) rare insect. They were taken on the Heights of Levis. In color they are of a sober brown and the primaries have a dark transverse streak on the upper side.

I have one specimen each of PAMPHILA EGEREMET, *Scud.*, and AMBLYSCIRTES SAMOSET, *Scud.*, taken by myself in the Eastern Townships, and one of the latter taken by Mr. R. Maxwell at Levis.

The butterflies that with us are extremely "local," being confined, as far as I know, to one or two places only, are *Chionobas Jutta*, Hub., *Thecla Augustus*, Kirby, *Thecla*

Niphon, Hub., and *Chrysophanus Epixanthe*, Bd. and Lec. I have not found *Eudamus Tityrus*, Fab., nor *Lycæna Comyntas*, Godt., east of Montreal.

The Entomologist should work his own locality thoroughly, and unexpected prizes will be very sure to reward his diligence. Two years ago a pair of *Melitæa Phaeton*, Drury, were seen flitting along the banks of a *ruisseau*, right in the town of Levis.

No doubt, as the numbers of our Entomologists increase, and new fields are brought under our observation, other haunts of our rarer species will be discovered, and names of new and advanced kinds added to our lists.

A TRIP TO MOUNT WASHINGTON.

By H. H. Lyman, Montreal.

On July 18th, 1891, I left Montreal on a trip to Mount Washington for the purpose of securing, if possible, the eggs of *Chionobas Semidea* and a goodly supply of the imagos. I expected to reach the summit that same evening, but the train was late and missed connection with the mountain train.

The next day was only partially fine, but a walk was taken along the carriage road which runs from Fabyan's to the base of the mountain, as far as the falls of the Ammonoosuc and back by the railway track, but nothing of any special interest was seen, as it was too early for *Grapta Gracilis*, and the only butterflies seen were *Argynnis Atlantis*, *Pieris Rapæ*, *Neonympha Canthus*, and a few common skippers.

All day the mountain had been covered with clouds, but as I was prepared to spend a week up there if necessary, this did not deter me; so I went up by the train that afternoon, and on arrival at the summit received a kindly greeting from Mr. Scudder, who had been up two days and already had females caged.

I, however, was in luck, for though we had turned in with the fog as dense as ever, the ringing of a bell about four o'clock the next morning announced that a sunrise could be well observed from the platform in front of the hotel. As I had never seen a sunrise from a mountain, I got up and joined the shivering contingent, for it was horribly cold (only 49°), and with a keen wind. The day was fine, however, and promised well entomologically.

As soon as possible after breakfast we sallied forth, and as Mr. Scudder was anxious to look for *A. Montinus* we started for the head of Tuckerman's Ravine. We had not gone very far down the rock strewn slope before I had netted my first specimen of *Semidea*, and as it was a female it was promptly boxed. We entered the ravine and descended almost to the bottom of the main slope without seeing any sign of *Montinus*, and as I was confident it was not on the wing, I concluded I was wasting my time, so we parted company, Mr. Scudder going on to the bottom where the snow arch forms, while I retraced my steps to the slope above the ravine, and then struck across to Bigelow's Lawn to hunt for *Semidea*. In a few minutes I found an excellent locality, where there was a narrow sedgy slope tolerably free from rocks and interspersed with clumps of the Mountain Sandwort (*Alsine Grœnlandica*) and other flowers, and somewhat sheltered from the wind then blowing. There I took up my position and collected a good many fine specimens, besides securing half a dozen or more living females for my cage.

Here I may pause to make a short reply to Mr. Grote, and I would say that I think he is unnecessarily alarmed when he says, "What time, on 'Bigelow's Lawn,' I see the ill-advised collector, net in hand, swooping down on this devoted colony, of ancient lineage and more than Puritan affiliation, I wonder if, before it is too late, there will not be a law passed to protect the butterflies from the cupidity of their pursuers."*

* "A Colony of Butterflies," by A. R. Grote.

This species is, as Mr. Scudder says, exceedingly abundant, and many thousands must fly upon the mountain every season. Then the number of entomologists on this continent is so small, and so few are able to visit the mountain, and most of those who get there can only stay such a short time on account of the expense; so few days are favorable for collecting, and so many are bad; the rock strewn slopes are such difficult collecting grounds, and so few of the butterflies one starts up are secured, that there is really very little cause for alarm lest they should fail to maintain themselves in their mountain fastness. But when I attend an entomological meeting in a city of over half a million inhabitants, and find ten or a dozen men gathered around a table, while the great world outside cares for none of those things, I have more fear for the extermination of entomologists than for that of any but the rarest of the objects of their study.

When I began catching this species I treated it with my usual care for fear of damaging the specimens; but I soon found that, in contrast to such species as *Macounii* and *Chryxus*, such care was quite unnecessary, and that it was quite possible to take them by their closed wings between the thumb and fingers and examine the genital organs before consigning them to the cyanide bottle or pill-box without causing any damage whatever. Returning to the summit with my catch, my first care was to prepare a cage, which I did by planting a small sod of the carex upon which the species feeds in an empty tomato can. I made the mistake of using a couple of wires crossing each other to support the net, the disadvantage being that any eggs laid upon the wires were practically lost, as I found it impossible to remove them without destroying them; whereas they could have easily been removed from sticks or twigs. In the afternoon another visit was made to Bigelow's Lawn, but with less success than in the morning. Mr. Scudder remained near the summit and was so fortunate as to find a nearly mature larva in the last stage, and he also stocked two cages out of doors on growing sedge as mentioned in his paper on "Experiments with Alpine Butterflies." Psyche VI., 129.

Next day, the 21st, Mr. Scudder being very anxious to find out whether *A. Montinus* was on the wing or not, we walked down the stage road to the fifth mile post where we separated, Mr. Scudder going down to the Lodge while I struck across the slope towards Huntington's Ravine, where I had seen and taken it in 1889.

We were both unsuccessful in our search for this butterfly, but I took a specimen of *Colias Interior* and saw several other individuals which probably belonged to this species.

In the afternoon we first examined Mr. Scudder's cages in the open air, three eggs being found in the one near the stables of the stage line but none in the other where the sedge was very long and rank in growth. The whole of the twelve females were then placed in the cage near the barn and handed over to my care, and then we went on down to the Alpine Garden but met with little success, though Mr. Scudder had found *Semidea* swarming there the day before. We looked for eggs to learn, if possible, how they were laid under natural conditions but none were found.

Next morning, the 22nd, Mr. Scudder went down by the early train, carrying his small flower-pot cage with him, and I took charge of the one near the barn and added a few more females to those already in it and also to my tomato can cage.

That morning I again collected on Bigelow's Lawn, and in the afternoon spent over an hour searching for larvæ of *Semidea* but without success. Afterwards I took a walk over to the summit of Mount Clay and saw a few *Semidea* at different points on the way. One that I started up on the shoulder between Washington and Clay flew with the wind and I made sure it would be carried down into the Great Gulf, but just after being carried over the edge it dropped in a wonderful way into a comfortable nook on the sheltered slope, which shows, I think, that they are not so helpless in a wind as is sometimes supposed.

I examined the cages several times that day but could see only a very few eggs, and began to fear that I should secure but few, but the next morning, the 23rd, I saw at a glance that a large number had been laid in the one out of doors and a number in the small cage also.

I left the large cage undisturbed as long as possible, collecting in various directions and in several orders, but at no great distance from the summit, but about noon began to dismantle the cage with the following result :

Eggs laid on green blades of sedge	2
" " " dead " " "	21
" " " stiff brown moss	45
Total	68

Those laid on the brown moss were particularly conspicuous.

At 2 p.m. I started down the mountain by train carrying the small cage with me and watched the behaviour of the imprisoned butterflies but could not see that they evinced any distress as we descended to the valley. A certain amount of restlessness was observed among some of the individuals, but nothing more than would be likely to be caused by the jarring of the mountain railway.

On arriving at the Mount Pleasant House four individuals were liberated and flew readily a distance of forty or fifty feet before alighting, which is quite as far as they often fly on the mountain.

That evening the weather turned wet and stormy, and an interesting question arises in this connection. Why were so many eggs laid that morning when so few had been laid during the two previous days? Can we suppose that the butterflies discerned the approach of bad weather and hastened to accomplish their oviposition before the weather changed?

Next day, the 24th, I went to the Profile House carrying the cage with the rest of the butterflies with me, and the following morning, the 25th, ascended Mount Lafayette taking six of them with me, as I was anxious to try the experiment of establishing the species on that mountain, the highest of the Franconia Range and rising above the Alpine limit, but I made an unfortunate mistake in putting them into too small a box, which resulted in their becoming so much enfeebled that when released they were quite unable to fly. I placed them upon a good sized patch of the same sedge that the larvæ feed upon on Mount Washington and left them to their fate ; but as a tremendous hail storm occurred in the early afternoon there could hardly be any doubt of what their fate would be.

Later in the afternoon I went to Littleton, still carrying the cage, and the next morning, Sunday, the 26th, let them go. One flew about thirty feet, one flew a few feet and one fluttered to the ground. In the afternoon three more were taken out but were too feeble to fly.

Next morning, the 27th, the cage was dismantled and the following eggs, many of which had unquestionably been laid after my descent from the mountain, were secured :

Laid loose or came off gauze	6
" on left hind leg	1
" " wire supports	18
" " gauze	6
" " brown moss and attached to it	3
" " " " but loose	20
" " dead blades of sedge	7
" " the tin can	1
Total	62

I have also a memo. of three collapsed eggs, but whether or not these were in addition to the above number I cannot now say.

I had thus from these two cages a rich harvest of no less than 130 eggs, of which only two were laid upon green blades of sedge, while the large majority were laid upon the brown moss or the wire which was about the same color as the moss. Most of the

eggs were of a creamy white color when laid, but two from my small cage were of the distinct lilac shade, which they assume before the hatching of the larvæ. About fifty eggs were mailed to Mr. W. H. Edwards, but of these he said that only about fifteen or twenty hatched, which I could not understand, as nearly all I kept disclosed the larvæ. Others were sent to Mr. Scudder, Mr. Fletcher, and the Rev. Mr. Fyles, and a good share was retained.

The first eggs in my cage were laid July 22nd, and the first larvæ hatched on August 7th, giving an egg period of sixteen days, but whether or not this stage is more extended on the mountain I am, of course, unable to say. One of my eggs failed to hatch though it retained its color and shape, so careful watch was kept on it and on August 13th a tiny parasite emerged through a small circular opening near the base. This was one of the eggs from Mr. Scudder's cage and must have been laid and parasitized either on the 22nd or morning of the 23rd, so that the cycle of life from egg to imago of this interesting little parasite must have been twenty-one or at the most twenty-two days. Mr. Scudder also had one emerge on the same day but lost it

Being uncertain how such tiny specimens should be mounted, I did not attempt it myself, but upon a subsequent visit to Boston toward the end of the month Mr. Scudder mounted it for me in balsam. This, however, was unfortunate, as I afterwards learned from Mr. L. O. Howard, who wrote, "I very much regret that you, or rather Mr. Scudder, attempted to mount the parasite in balsam, as these hard-bodied creatures, no matter how minute, can be better studied if mounted on an ordinary paper tag. As it is, the specific characters of the insect are entirely indistinguishable. It belongs to the genus *Tilomonus*, and, so far as I can see, differs from the two species which are mentioned in Scudder's 'Butterflies of the Eastern United States,' but I should not attempt to describe it."

I was travelling around a good deal from August 16th to September 3rd and carried the larvæ with me everywhere, feeding them on grass. I even had some of their regular food plant mailed to me in a tin box from Mount Washington, but as I could not see that they ate it any more freely than ordinary lawn grass I did not send for any more. Their growth was exceedingly slow, and they were very sluggish, generally remaining at full length head downwards on the edge of a blade of grass. The mortality was heavy, but I succeeded in carrying about half-a dozen past the first moult, but all these died before the second moult. This year again (1892), I have had eggs of *Semidea* through the kindness of Mr. Scudder, who sent me about twenty eggs laid between the 11th and 14th of July. The first one hatched on July 25th and most of the others on the 26th, giving an egg period this year of fourteen days, or two days less than last year, which is probably to be accounted for by the greater heat this year. Unfortunately I was even less successful this year than last, as I did not succed in getting any past the first moult.

ON THE POWER OF INSECTS TO RESIST THE ACTION OF FROST.

By J. Alston Moffat, London, Ontario.

If the experiments with the larva of *Laria Rossii*, as related in Mr. Lyman's paper, entitled, "Can Insects Survive Freezing," were scientifically conducted, it demonstrates that some of them can.

There is an endless diversity in the manner in which frost affects different living organisms, some can survive where the mercury freezes, whilst others succumb to the slightest touch of frost. There is a great difference in the degree of frost required to freeze different substances, and yet it is only a question of degree when all known substances may be frozen.

It is a well-known and generally conceded principle in science, that "Life in nature is adapted to its environment,"—a comprehensive expression which implies a great deal. It generally implies that long continued association has brought the life and the conditions into perfect harmony; which may imply that it has unfitted that life for a different condition. How little of the life of the temperate zones can endure the conditions of either the arctic or the tropic zones, so that what would be true of the life in one would not be true if tried in the other. In considering this subject, then, we must take into account the conditions to which the life we are dealing with has become adapted; it would never do to subject the life of temperate latitudes to the conditions of the Arctic regions, and draw our conclusions from the result.

If any form of life, from whatever cause, changes its locality, it must accommodate itself to its new conditions or perish. "There are a few forms of life that can withstand the extremes of heat and cold, but there are for every form average conditions, geologic and climatic, which are most favorable for its attaining to its fullest development." We know that some forms of life can accommodate themselves to altered conditions with comparative ease, some, with great difficulty, and some, not at all If they succeed, they may have to undergo considerable change in life, form, colour or habit, to bring them into harmony with their new environment, hence what we have to discover specially, is the powers of resistance to frost that are possessed by the insects of our latitude.

It will enable us to attain to a clearer comprehension of the subject, if we keep before the mind, the distinction that exists between warm and cold blooded animals. The one by their internal heat and external covering, can maintain an almost uniform temperature regardless of the state of the surrounding atmosphere, whilst the other has seldom any external covering, has little internal heat, and parts with that little readily whenever the external temperature goes lower.

It has been stated as a general principle in physiology, that, "wherever there is life there is heat." This may be true of active life, but there is such a thing as inactive life. For instance a tree may be frozen to the core and yet not be dead; there is no manifestation of life, but that is simply the result of unfavorable conditions. A more correct principle, and one I believe of universal application, is "that wherever there is respiration there is heat." For example, active vegetation respires, and the vegetative process is known to be productive of heat in some measure. The chemical combination by which heat is produced and maintained in warm-blooded animals, is, in great measure, well known and easily understood. Heat is the result of combustion. Combustion is obtained by a commingling of oxygen with carbon. The food taken into the stomach supplies the carbon, the air breathed into the lungs provides the oxygen, the blood flowing through the lungs is exposed over a superficial surface of from a hundred to a hundred and fifty square feet, it is thereby oxygenized, then carried in the veins to the remotest parts of the organism, and when liberated unites with the carbon of the tissues; combustion ensues, and calorification is the result. Wherever there is combustion there is waste, so waste matter is thrown off, and its place taken by fresh material. Then again, activity produces heat. Physical exertion produces rapid respiration and circulation, which produces more rapid combustion; consequently more heat. But most animals have a regulating apparatus of some kind for equalizing their temperature; when this heat is excessive, the pores open and evaporation produces refrigeration; when cold comes, these close and their heat is economized. With those of them that hibernate, the same principles are in operation. During summer time they have been laying in a supply of carbon in the shape of fat; on the approach of winter they retire to their hibernacula, settle themselves down and become somnolent. Being inactive, respiration is reduced to the minimum, consequently combustion is slow, and their heat is correspondingly reduced, but they are always warm, if alive, and they invariably leave their winter quarters greatly reduced in flesh. Now mark the contrast with cold-blooded animals, to which insects belong. They have but little heat to begin with, some requiring the most delicate instruments to detect the existence of any. Not being endowed with any regulating apparatus to save it, they part readily with what little they have as soon as the surrounding temperature goes lower, activity with them does not maintain heat, their activity depending entirely upon

the condition of the surrounding atmosphere. And when they go into hibernation, respiration is completely suspended, consequently there is no combustion and therefore no waste, and they emerge from their period of torpor, be it short or long, months or years, without the slightest perceptible loss in flesh. We are all aware of the difficulty of obtaining reliable information on scientific subjects from popular sources, even experts are often discovering that what appears to be is far from being what is. A fine illustration of this is given in connection with the controversy about the revivification of desiccated pond life.

Near the residence of a Professor Zacharias, is a granite block with a cavity holding from two to three litres of water, which evaporates in from two to six days according to the weather. There has been living therein for fifty years, by actual observation, a particular kind of Rotifer, and various Protozoans whenever the conditions were favorable. And this same fauna persisted in spite of complete desiccation, thousands of times repeated; and it was referred to as proof that the dried individuals revived. This persistence aroused the curiosity of Prof. Zacharias, and he went to work to investigate it, and he soon discovered that when the Rotifers and Protozoans were allowed to dry, they invariably died, but the eggs were preserved by encystation, and were ready to emerge when the rain came. And after long and careful investigation in other departmen s, he arrived at the conclusion that there was probably no such a thing as desiccated animal revivification.

The exact observations made by Dr. Hamilton, as recorded in the *Canadian Entomologist*, vol. XVII, beginning on page 35, are conclusive that certain beetles can resist the action of frost to a very great degree. Others have recorded similar observations in Lepidoptera. I have handled the pupæ of Cecropia and Polyphemus moths when exposed to 10, 15 and 20 degrees of frost and they were not solidified, the cocoon could afford them little or no protection, and the mystery is, wherein lies the power of resistance? A mystery which yet remains unsolved. I quote the following extracts—authority not stated: "Protoplasm in certain cases can endure a temperature of zero or lower; and in others can live at 90 degrees or higher temperature. This is a remarkable fact which neither physiologists nor chemists can explain. . . . The less active the life the less vulnerable it is, cold kills a great number of the lower organisms by reason of the disorganization of the tissues which takes place when congealed, and this disorganization is complete in proportion to the amount of water the tissues contain." May we not here be on the verge of an explanation of the mystery? We know that there are oils and spirits that resist a great degree of frost. May not the protoplasm of insects, larvæ and pupæ especially, be composed of fats with no water in their tissues for frost to act upon? Chemical analysis ought to be able to decide.

That a caterpillar is found in a cube of ice, is not proof that it is solidified. I have more than once seen the larva of *Arctia Isabella* embedded in ice, but as I did not investigate them as to their condition in that respect, I can add nothing; but going back upon what has been already said, it seems reasonable to suppose they were not frozen. On the approach of winter they took refuge under a board, stick or stone; when the cold increased they became torpid, snow fell; then a thaw set in, but the heat did not reach them to rouse their faculties into action; the water flowed in upon them, they could not drown, for respiration was completely suspended; frost returns, the water is congealed around them, the ice is not any colder than the air would have been, so if they could resist the action of the one, they also could that of the other. And here I would remark, that by such considerations, we get the natural explanation of how the beetles survived the winter inundation without injury, as related by Dr. Hamilton, in the article already referred to.

It is a well-known fact in medicine, that poisons act slowly, and may even be quite harmless when the temperature is low. I daresay we are all familiar with the different action of the same cyanide under different temperatures, and feeble respiration is well known to secure insects for a length of time against the poisonous fumes of cyanide. And there can be little doubt, but that by one or other of these causes, or both combined, the life of Dr. Hamilton's *Lixus Concavus* was insured against the action of alcohol. I have

taken recently transformed beetles out of decayed wood, that showed unmistakable signs of life, but were very lethargic, and they have resisted the fumes of strong cyanide for three days—no doubt the result of feeble respiration—although some claim that it is difficult to kill some insects at any time, until they have fulfilled the functions of their existence. But then again I have seen water beetles in a pond where cattle were watered, quite lively under the ice, and when the ice was cut, the pressure above produced a rush of water that brought beetles with it, and when they were tossed out on the ice they were dead instantly. That could not have been the result of contact with the ice, but from exposure to the frosty air. Dr. McCook in his "American Spiders and their Spinning Work," gives an account of some experiments made by him, with a view to discover the effects of low temperature upon them, from which he draws the following conclusions:—Vol. II, p. 435: "It would seem, therefore, first, that the hibernation of spiders, of this species at least, is not accompanied with a great degree of torpidity; second, they preserve their activity and spinning habit while exposed to cold ranging from the freezing point to zero Fahr.; third, that after long and severe exposure the recovering of complete activity, when brought into a warm temperature, is very rapid, almost immediate; and fourth, that on the return of spring, even after a prolonged and severe winter, they at once resume the habits of their kind."

"In all the above specimens the abdomens were full, indicating perfect health. Other spiders hung upon their webs with shrivelled abdomens, quite dead. . . . The living individuals were all characterized by the plump abdomen, as though there had been little or no absorption of tissues for nourishment of life. There appeared to be no growth during hibernation."

It is quite evident that a great increase to our knowledge, obtained by careful observations, is yet required before any general conclusions can be safely drawn, yet this much seems to be clearly established: That there are many insects, in some stage of their existence which can and do successfully resist the action of the severest frosts to which they are exposed in our latitude.

That these could be congealed by severer frost is quite probable; but that they would survive such freezing is yet open to doubt. That some are solidified by severe frosts and yet survive, is quite possible, but the evidence on this point is still defective.

I copy the following from the Smithsonian report for 1887, article Zoology, p. 479, and give it for what it is worth. It is entitled: "Minimum Life Temperatures." "A series of experiments upon various animals have been made by Dr. H Von Thering in extension of Professor Ponchet's researches on the resistances which animals may offer to cold. About two dozen worms, arthropods, and mollusks, were made the subject of investigation. The results have been summarized in the following terms:

(1) "Lower animals become frozen at temperatures varying greatly in the different genera and species, the resistance varies with the actual body-heat of the animal, with its size, structure, and protective covering, with the freezing point of blood, etc."

(2) "The resistance usually increases with progressive development, but sometimes the adults are more sensitive than the young."

(3) "Nothing can be directly inferred from the geographical distribution."

(4) "Perfectly frozen animals are never revivified."

Shall we add, "In his latitude?"

But there is an important economic side to this subject, as well as one of purely scientific interest. The opinion prevails extensively amongst those that are most liable to suffer from the depredations of insects, that steady severe frost in winter will greatly reduce their numbers, and thereby save them labor and loss the following summer; which is far from being the case. Those that have given the matter consideration know that such a winter is protective of insect life; it is mild, open winters that are most injurious. A large number of Lepidopterous insects pass the winter in the egg and pupal stages, and when warm weather in winter is sufficiently prolonged to start these toward

maturing, by just so much have their powers of resisting the action of frost been red uced and their liability to be injuriously affected by succeeding cold increased. Hence it is in the spring of the year that they suffer the most. A period of mild weather in early spring, followed by a protracted one of cold and wet, even when the frost is not severe, may be, and often is the cause of death to myriads of them. This is one of nature's methods of reducing their numbers. Coleopterous insects are not so liable to be injuriously affected by this cause, the reason for this is clearly and beautifully placed before us in Dr. Hamilton's paper. It is to be regretted that so little careful observation has been given to this interesting subject.

FOURTH ANNUAL MEETING OF THE ASSOCIATION OF ECONOMIC ENTOMOLOGISTS.

The fourth annual meeting was held in the University building, Rochester, N.Y., on Monday and Tuesday, August 15th and 16th. The President, Dr. J. A. Lintner, of Albany, N.Y., occupied the chair, and Prof. F. M. Webster, of Wooster, Ohio, filled the office of Secretary. The following members were also present :—C. V. Riley and L. O. Howard, Washington, D.C. ; D. S. Kellicott, Ohio ; John B. Smith, New Jersey ; E. B. Southwick, New York ; H. E. Weed, Mississippi ; M. V. Slingerland, New York ; H. Osborn, Iowa ; J. Fletcher and C. J. S. Bethune, Ontario ; C. H. Perkins, Vermont ; P. H. Rolfs, Florida ; S. A. Forbes, Illinois.

Owing to the ill-health of the President, the annual address was delivered by the Vice-President, Prof. Forbes, in which he treated especially of the work that has recently been done on the contagious diseases of insects, and the satisfactory results that have thus far been obtained. He also referred to the successful importation of several insect parasites, and drew the attention of the meeting to the desirability and importance of studying the aquatic insects of America and their relation to fish culture. This able and highly interesting address was subsequently reported upon by a special committee who warmly commended it and urged upon the attention of Economic Entomologists the recommendations in regard to "Aquatic Entomology" and its bearings upon fish culture.

Prof. Kellicott read a paper upon "Hypoderus Columbæ," a mite which is parasitic upon pigeons.

A paper by Mr. C. H. Tyler Townsend was read on "The possible and actual influence of irrigation on insect injury in New Mexico," in which he showed that in that region of the country irrigation may be made to exert a valuable influence as an adjunct to the proper use of arsenites and kerosene.

Prof. Kellicott read "Notes on Ægeriadæ of Central Ohio, No. II.," which is published in the *Canadian Entomologist*, September 1892, p. 209.

Prof. Smith said that adults of the Squash Borer (*M. cetо*) from last year's larvæ were then flying on Long Island, and that all stages of the insect might be obtained in the same field. The moths assemble in the evening on the upper sides of the leaves and are collected in great numbers by the farmers. Messrs. Forbes, Slingerland and Smith stated that in their experience the Ægerians were not attracted by electric light.

A paper on "The Bean Weevil (*Bruchus obsoletus*)" was read by Mr. M. V. Slingerland, in which he described the mode of ovipositing and gave a brief account of the life history of the insect. He stated that bi-sulphide of carbon will destroy the insect in all stages. He also read a paper on "*Drasteria erechtea*" in which he stated that in 1889 over two thousand specimens were taken by means of trap lanterns at Ithaca, N.Y. Last year he bred a number of specimens, and as a result of the study of the material thus obtained, together with about three hundred specimens from all sections of the country,

he came to the conclusion that there are two species, about equally common, included under the name *erechtea*, and that these should be called *D. eerchea*, Cram, and *D. crassiuscula*, Haworth, with *ochrea* and *distincta* as varieties of the latter. He then proceeded to describe the differences between the species, and recommended the plowing of the infested fields in order to destroy the larvæ and pupæ.

A paper by Mr. T. D. A. Cockerell, of Kingston, Jamaica, on "*Orthezia insignis* as a garden pest," was read by the Secretary. The writer stated that the insect was first observed on a variety of exotic plants in the hot houses at Kew and elsewhere, and that he now found it injurious to several garden plants in Jamaica.

A paper by Dr. F. W. Goding on "The Food Plants of North American Membracidæ," was next read. This was followed by Prof. J. B. Smith's paper, "Notes of the Year in New Jersey," in which he referred to the principal insect attacks that had come under his notice. In the discussion that followed, remarks were made by Mr. L. O. Howard, Prof. H. Osborn, Dr. Lintner and Prof F. M. Webster.

Prof. Webster drew attention to the occurrence of *Phytonomus punctatus* to an injurious extent in north eastern Ohio, and of *Hylastes trifolii* attacking peas in northern Ohio. He stated further that *Otiorhyncus ovatus* was found feeding upon the foliage of musk-melons.

A paper on "Two Serious Pear-tree Pests," was read by Mr. M. V. Slingerland, of Cornell University.

1. The Pear-tree Psylla (*Psylla pyricola*) This insect is described as one of the most serious pests that pear growers have to fear. It had appeared in the valley of the Hudson in enormous numbers during 1891. Orchards which had given promise of 1,200 barrels of fruit having perfected less than 100 barrels. The pear-tree Psylla when mature is scarcely 3 mm. in length, shaped like a miniature cicada. The nymphs are oval and very flat and produce a great deal of honey-dew which renders the trees unsightly. There are three and perhaps four broods in the year and it is in the perfect state that the insect hibernates. As a remedy Mr. Slingerland had found that the nymphs were easily destroyed by a very weak kerosene emulsion (two per cent.) Washing the trees in winter to destroy the adults was also recommended.

2. The Pear-leaf Blister-mite (*Phytoptus pyri*) was alarmingly on the increase in the United States and Canada. It is a very small mite which hibernates beneath the bud-scales of the pear tree and comes out when the leaves expand in spring and forms blister-like galls on the foliage. Spraying the trees during the winter with kerosene emulsion had been found successful.

Prof. Lintner stated that *P. pyri* was very abundant in eastern New York.

Prof. F. M. Webster had also found it abundant in Ohio. Spraying with Bordeaux mixture had shown no effect in reducing the leaf-blisters.

Prof. J. B. Smith had found that in orchards sprayed with the ammoniacal solution of carbonate of copper mixed with London purple, the pest was perceptibly lessened.

Mr. Southwick read a paper upon *Depressaria heracleana*, the Parsnip Web-worm, and gave an interesting account of the war waged upon it by the "Potter wasp" (*Eumenes fraterna*) and stated that he had bred from it a Hymenopterous parasite, a species of *Limneria*.

Mr. Howard read the following paper on "An Experiment Against Mosquitoes," which was listened to with great interest:

AN EXPERIMENT AGAINST MOSQUITOES.

By L. O. Howard.

One of the most reasonable of the recommendations which have been made from time to time, and which look toward the reduction of the mosquito plague during the summer months, is the application of kerosene to restricted and fishless breeding ponds. Although this remedy has often been suggested, I know of no careful records of actual experiments, and consequently deem the following account of a recent experience worthy of publication.

On the 5th of July of the present year I noticed for the first time a few mosquitoes on the porch of my cottage, in the Catskill mountains of New York. The elevation of this cottage is about 2,500 feet, and mosquitoes have hitherto been rare visitors. The month of June, however, was very wet, and as I had noticed several pools of surface water in the immediate vicinity, the presence of these mosquitoes caused me some anxiety, as I feared they would continue to breed throughout the summer and prove a serious annoyance later in the season. One of the surface pools mentioned was situated on my own grounds, and upon first noticing the mosquitoes I walked out to this spot. It was about dusk, and about a dozen or more female mosquitoes were found buzzing about the surface of the water. I immediately sprinkled four ounces of coal oil upon the surface of the pond.

Upon the following day I carefully measured the little pool and found that it contained 60 square feet. From day to day until July 15th, when I returned to Washington, observations were made. Severe rain-storms occurred on the 8th and 10th of the month, and after the first of these the pool lost the glassy irridescent surface effect given by the almost continuous but infinitesimally thin layer of kerosene. Nevertheless the insecticidal effect of the latter did not seem to diminish, although I could no longer perceive any coal oil odor. Many dead insects were found floating upon the surface of the water the next morning after the application, and these increased rapidly up to the time of my departure. The pool, which upon the evening of the 5th had been teeming with animal life, contained no living insects during the following ten days.

The actual good accomplished is shown by the following facts: All aquatic larvæ, including those of the mosquito, were killed. The kerosene, curiously enough, seemed to exercise no deterrent effect upon the adult female mosquitoes. They still continued to attempt to deposit eggs and in this attempt were destroyed. This is, in my opinion, a most important point, and one which has hardly been anticipated.

On the tenth day after the application a careful count of the dead insects floating upon the surface of the water was made over a restricted portion, and from this count the entire insect surface contents of the pool was estimated, with the following result:

Entire number of dead insects floating on the surface	7,400
Number of mosquitoes	370
Number of *Epirrita inclinata*, Walker—a small Geometrid moth	148
Number of *Heterophleps triguttata*, H.S.—another small Geometrid	42
Number of *Chrysops hilaris*, O.S.—a common gad fly of the region.....	27

These were the most conspicuous. The others were mainly minute Nematocerous Diptera, although there were a large number of small Heterocerous Lepidoptera, a few aquatic Coleoptera—the largest species being the Dytiscid *Agabus gagates*, Aubé—and also a few specimens of Cryptocerate Heteroptera.

It is difficult to say how certain of the non-aquatic species, particularly the Lepidoptera and the Chrysops, happened to be caught. They may have visited the pool to drink, or they may have been attracted to its shining surface.

The observation, it seems to me, possesses interest not only as proving definitely the efficacy of the remedy and as showing that adult mosquitoes are killed as well as their early stages, but also as affording an indication as to the amount of kerosene which will prove effective for a given surface of water, and also as affording some indication of the length of time for which a single application will be operative. It is true that upon this last point the observations were not complete, owing to my departure after ten days, but as already indicated, the influence of the kerosene outlasted all ocular or odorous evidence of its presence, and there is every reason to suppose that it would have continued for some days longer.

As a general thing, in larger ponds, which are of a more permanent character, the presence of fish is a check upon the multiplication of the mosquito. These insects breed mainly in marshy lands, where small pools, surrounded by wet soil, adjoin each other, and such spots, where accessible, can be readily and economically treated with coal oil.

The economy of the operation is shown by a simple estimate from the data which I have given, that 5 gallons of coal oil, costing say 60 cents, will treat 9,600 square feet of water surface, or, to carry the computation still further, a barrel of kerosene, costing $4.50 will treat 96,000 square feet of water surface.

With this remedy and with the drainage of swamp lands where practicable, with the introduction of fish into ponds in which they do not already occur, and with the careful watching of rain-water barrels and tanks, the mosquito plague in many localities can be readily and greatly lessened. Where mosquitoes breed, however, in the long succession of brackish marshes on the seacoast, remedial work is practically hopeless. I anticipate not the slightest practical outcome from Mr. Robert H. Lamborn's dragon-fly proposition, and believe that relief in such cases will only come from extensive improvements at the public expense in the way of filling in and draining the marshes.

One word more in reference to water tanks. The use of kerosene is of course out of the question in such receptacles. A note was published in *Insect Life* (vol. iv., pp. 223-224) to the effect that the introduction of carp into water tanks in the Riviera was productive of the best results. This is a pertinent suggestion for trial in this country. The U. S. Fish Commission can doubtless furnish a limited number of carp for this purpose. All water tanks and barrels should, however, be tightly covered, and only opened occasionally for the purpose of aerating the water. When thrown open for this purpose it will not be difficult to ascertain whether larval mosquitoes (wrigglers) are present, and if so, and the tank is not too large, they can be removed by means of a fine-meshed hand net.

Interesting notes of the year were read by Prof. Howard Evarts Weed.

With regard to the Horn-fly Prof. Smith stated that it was not more abundant in New Jersey than the ordinary Cattle-fly (*Stomoxys calcitrans*).

Prof. Kellicott said that his son had found it very abundant in Central Michigan.

Mr. Weed thought that dark coloured cattle were most subject to attack. He also recorded that the insect now occurred in Louisiana.

Dr. Bethune stated that the Horn-fly had that month been noticed for the first time in the Province of Ontario, at Oshawa, Toronto and London, and was creating some alarm among stock owners.

Mr. P. H. Rolfs had found the Horn-fly in Florida.

Mr. Osborn read Notes on Injurious Insects in Iowa. For want of time the discussion on this interesting paper was deferred.

Prof. C. V. Riley read a paper on Rose saw-flies in which it was shown that there were three distinct species attacking roses.

Afternoon Session.

On reassembling the following members were elected :

Prof. P. H. Rolfs, of Florida; Mr. H. A. Gossard, of Iowa; and Mr. C. F. Baker, of Colorado.

A paper on Plant Faunæ by Mr. T. D. A. Cockerell, of Kingston, Jamaica, was read.

Mr. James Fletcher read a paper on Injurious Insects of the Year in Canada; this gave rise to a long and interesting discussion on several points brought up in this paper, particularly with reference to the life history of *Gortyna immanis*, the different kinds of knapsack sprayers, and the most practical remedies for the Horn-fly.

Prof. Webster read a paper on the aphidivorous habits of the common slug (*Limax campestris*), which was discussed by Messrs. Riley, Smith and Howard.

Dr. Bethune had found slugs upon trees he had sugared for moths.

The following officers were elected for the ensuing year :

President—Prof. S. A. Forbes, of Illinois.
1st Vice-President—Dr. C. J. S. Bethune, of Canada.
2nd Vice President—Dr. J. B. Smith, of New Jersey.
Secretary—Prof. H. Garman, of Kentucky.

And the meeting then adjourned.

ENTOMOLOGICAL CLUB OF THE A. A. A. S.

The Entomological Club of the American Association for the Advancement of Science held its annual meeting at Rochester, N.Y., August 17th to 19th, 1892, under the presidency of Mr. E. A. Schwarz, of Washington, D.C. The President's address is published in the *Canadian Entomologist* for September, 1892, pages 213-224, and the full official report in the October and November numbers; to these the reader is referred. The meeting was very interesting and successful, and was attended by over thirty persons. The Entomological Society of Ontario was represented by its President, Dr. Bethune, and Mr. James Fletcher, of Ottawa. The former was elected President of the Club for the ensuing year, when the meeting will be held at Madison, Wisconsin, in connection with the gathering of scientists at the World's Fair in Chicago.

SOME INJURIOUS MICRO-LEPIDOPTERA.

By J. Alston Moffat.

The difficulty experienced in obtaining mature examples of some of these tiny creatures is often very great. The evidence of their work may be unmistakable by the injury that is being done by their larvæ in the effort to appease the craving of their appetites, and yet it may be almost next to impossible to secure a specimen in the form that originated the mischief.

There are two good reasons to account for it, one is that many of these moths are active only at night, and secrete themselves most effectually during the day; another is the extremely brief existence of many of them in the mature state. The females generally come into the world with their eggs full size, requiring only to be fertilized before depositing. The male, as a rule, emerges first, and is awaiting the appearance of the females; when fertilization is completed he dies. The eggs are then laid by the female, which may be all done in one night's time, and when that is finished she also dies of exhaustion. Hence the necessity for rearing them in confinement, so as to obtain conclusive evidence of the particular moth that laid the eggs that produced the larva that we see is doing so much mischief. And as this requires a great deal of time, close observation and experience to accomplish successfully, we see the need there is that some should be put in a position to be able to devote their whole time to it, that thereby the community may reap the benefit of the knowledge thus obtained.

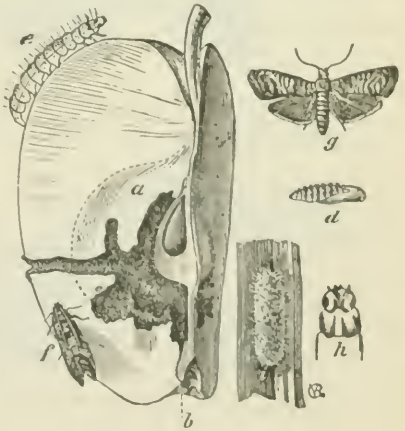

Fig. 14.

A good illustration of the truth of these remarks is got in the case of the Codling-moth, *Carpocapsa pomonella*, Linn. (Fig. 14). Almost everyone has heard of it, and knows with more or less distinctness that it is the cause of the unfortunate worminess of the apples they grow or have to use, and yet how few have ever seen the moth, or would know it if they did see it? During all the years of my collecting I have never found it in its natural locations. My first specimen was given to me by a friend who took it on his cellar window. My next were obtained by enclosing a few infected apples in a box, and not until the latter part of June, 1889, did I secure a satisfactory supply of good specimens. I was stopping in the country at a place where an old house was used as a

store room ; in the spring the apple barrels had been removed from the cellar to this store room, with the remains of the winter's fruit. The warm weather was then maturing the Pomonellas, and the south windows of the old house were literally swarming with them, large sized and in perfect condition. I took three dozen and might have taken as many hundreds.

The sequence and nomenclature of the following species is in accordance with the most recent decision of the authorities.

Pyralis, Linn. *Asopia*, Tr. *costalis*, Fab. *fimbrialis*, S. V.

Pyralis costalis, Linn. The Clover hay-moth (Fig. 15.) Expanse of wings, about three-fourths of an inch ; varies considerably in size. Colors : Front wings glassy purplish brown and golden yellow ; hind wings lighter. An introduced species.

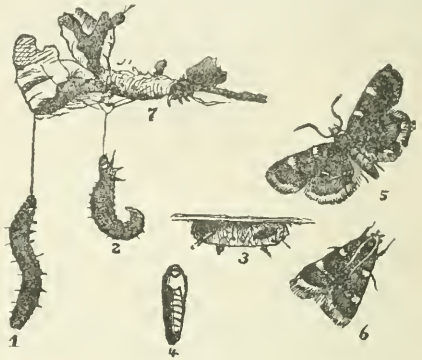

Fig. 15.

For full description of its nature and habits see the Twelfth Annual Report of the Entomological Society of Ontario. It was quite plentiful in some of the hay lofts of London last summer. The figures represent it in its various stages.

Mr. T. H. Hill, of London South, secured a very remarkable form of it last summer. The ground colour is a rich apple green, which, combined with the golden yellow of the spots, margin and fringes, makes it an exceedingly attractive object to contemplate.

Mineola, Hulst. *Phycis*, Haw. *indigenella*, Zell. *nebulo*, Walk.

Mineola indigendla. Zell. The Apple leaf crumpler (Fig. 16). Expansion of wings about seven-tenths of an inch. Colors : Pale brown and silvery white ; hind wings brownish white. Introduced. (See Fourteenth Annual Report).

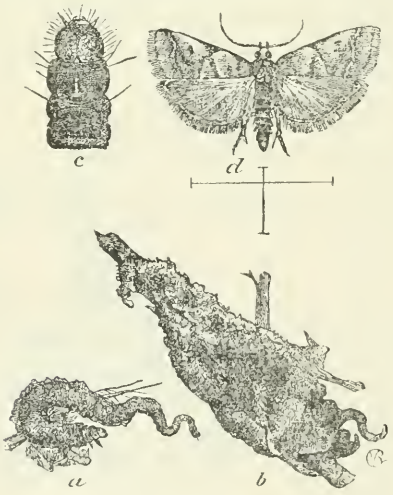

Fig. 16.

Fig. 17.

Zophodia, Hub. *Dakruma*, Grote. *grossulariæ*, Pack. *convolutella*, Hubn.

Zophodia grossulariæ, Pack. The Gooseberry fruit worm (Fig. 17). Expanse of wings, nearly an inch. Colors · Pale gray with darker streaks and bands. (See Second, Seventh and Nineteenth Annual Reports).

Canarsia, Hulet. *Pempelia*, Hub. *Hammondi*, Riley.

Canarsia Hammondi, Riley. The Apple-leaf skeletonizer (Fig. 18). Expanse of wings, not quite half an inch. The cross lines in the figure under the moth indicate the natural size. Colors: Deep purplish gray, and two silvery gray bands on the front wings, with a glossy surface.

The Larva (Figure *a*, natural size) eats the green pulp from between the veins on the upper surface of the leaf, causing it to assume a blighted appearance; *b* and *c* in the figure are portions of the larva greatly magnified.

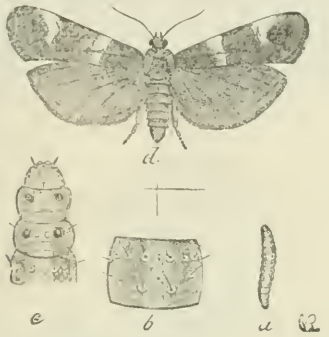

Fig. 18.

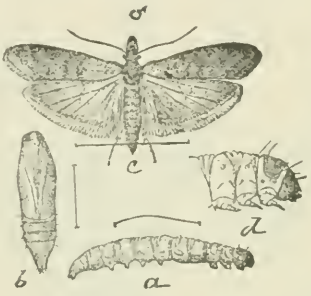

Fig. 19.

Plodia, Gn. *Ephestia*, Gn. *interpunctella*, Hub.

Plodia interpunctella, Hub. The Dried-fruit moth (Fig. 19). Expanse of wings, about half an inch. Colors: Yellowish and reddish purple. (See Twentieth Annual Report).

A few years ago I saw a half barrel of dried apples that had remained undisturbed for some time, in an upstairs chamber, and this moth had found it to be a convenient breeding place. The mature insects were in surprising numbers, resting on the inside of the barrel, and when disturbed would dart down and hide themselves amongst the pieces of apple which were completely infested with the larvæ in all stages of growth.

Cacœcia, Hub. *Loxotœnia*, Steph. *rosaceana*, Harr.

Cacœcia rosaceana, Harr. The Oblique-banded leaf-roller (Fig. 20). Expanse of wings about an inch, but varies greatly. Colors: Front wings cinnamon brown, with markings of darker brown; hind wings yellow.

Fig. 20.

A very general feeder. (See First, Second, Third, Fourth and Twenty-second Annual Reports.) This moth was unusually abundant here last summer. In a bit of open woods near the city, with a thick undergrowth of oak and hazel about four feet in height, they could have been seen during the latter part of July and the first part of August, resting on the upper surface of the leaves so thickly as to arrest the attention of the most unobservant, and when a bush was jarred they would rise from it in dozens.

Cacœcia Hub. *cerasivorana* Fitch. *Cacœcia cerasivorana* Fitch. The cherry-tree leaf eater. Fig. 21.

Fig. 21.

Expanse of Wings, about three fourths of an inch.

Colors: Front wings a rich reddish yellow, with much the shade of fresh bees-wax and darker shades with cross-bands of pale leaden blue. Hind wings, pale ochre yellow.

Retinia Gn. *comstockiana* Fern. *Retinia comstockiana*, Fern. The Pitch-pine branch miner. Fig. 22.

Expanse of wings about three-fourths of an inch.

Colors: Front wings, rusty brown, with white and leaden-hued markings crossing the wings. Hind wings, greyish brown.

The figure shows the chrysalid magnified, also the larva, and its manner of working in the branches, with the effects produced in the injury and disfigurement of the tree. (See Fourteenth Annual R port.)

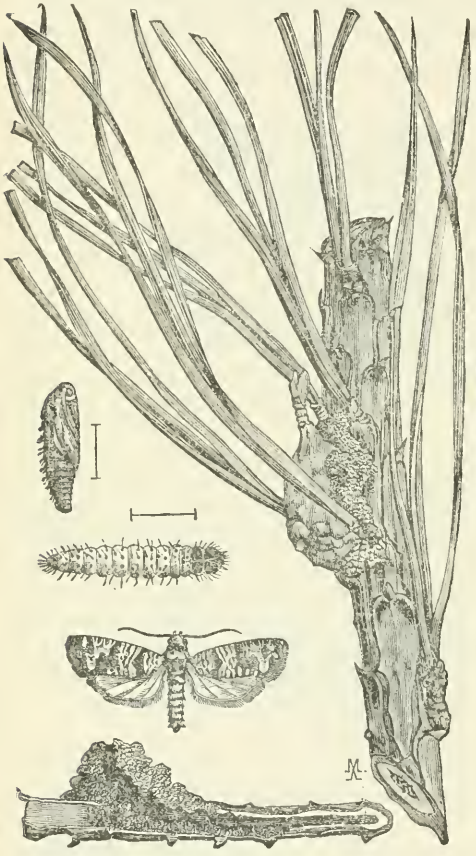

Fig 22.

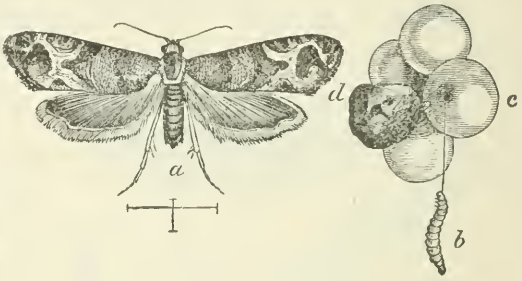

Fig. 23.

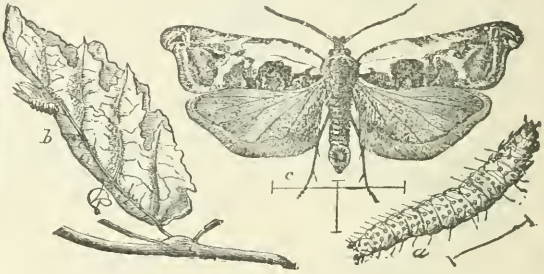

Fig. 24.

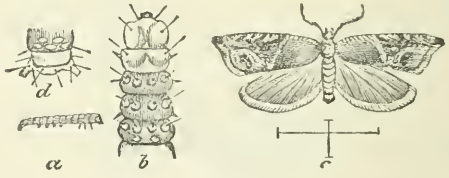

Fig. 25.

Eudemis Hub. *Penthina* Fitch. *botrana* Schiff. *vitivorana* Pack. *viteana* Clem. *Eudemis botrana*, Schiff. The Grape berry moth. Fig 23.

Expanse of wings about half an inch.

Colors: Front wings dull bluish of different shades with a metallic lustre. Hind wings, dull brown; an introduced species. (See Thirteenth and Fourteenth Annual Reports.)

Phoxopteris Tr. *nubeculana* Clem. *Phoxopteris nubeculana* Clem. The Apple-leaf sewer. Fig 24.

Expanse of wings about half an inch.

Colors: Front wings white with brown markings; hind wings light gray.

I have taken this moth only in the woods, but I do not find it so generally abundant as some of its congeners which have not yet been reported as injurious. It seems to have found the apple leaf quite to its liking, and the conditions in the orchard favorable to its increase.

Phoxopteris Tr. *Anchylopera* Wal. & Riley. *comptana* Frol. *fragariæ* W. & R. *Phoxopteris comptana* Frol. The Strawberry leaf roller. Fig. 25.

Expanse of wings about half an inch.

Colors: Front wings reddish brown, marked with black and white; hind wings dusky. An introduced species. (See Third Annual Report.)

Aspidisea Clem. *splendoriferella* Clem. *pruniella* Clem. *sacetella* Pack. *Aspidisea splendoriferella* Clem. An apple leaf miner. Fig. 26.

Colors: Front wings leaden gray, with a metallic lustre, with golden and silver spots and streaks; Hind legs gray with yellowish brown fringe.

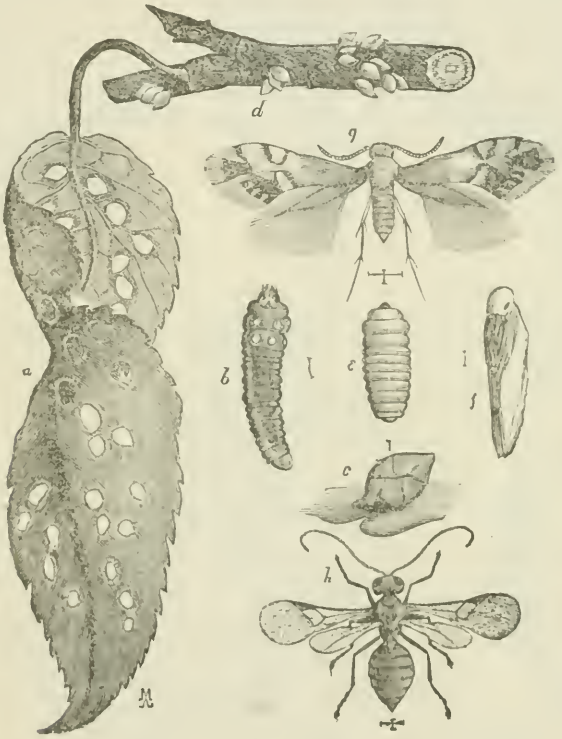

Fig. 26.

a shows the work of the minute larva in the leaf; the line at *b* gives its length; *d* illustrates the cocoons attached to the branch, and *h* is a parasite greatly enlarged. The cross lines below indicate the natural size.

Coleophora Zell. *malivorella* Riley. *multipulvella* Cham. *Coleophora malivorella* Riley. The Apple-tree case-bearer. Fig. 27.

Expanse of wings about half an inch.

Colors: Wings brown, dotted with white; thorax and abdomen white, dotted with brown. The parent moth deposits her eggs in July, the larva feeding on the underside of the leaf during August and September. On the approach of the cold weather they desert the leaves and fasten their cases to the twigs, as represented at (a) where they pass the winter. When the warm weather returns in spring they detach themselves and move about, feeding on the swelling buds, when they do the greatest injury; maturing about the beginning of July to commence another cycle.

Bucculatrix Zell. *pomifoliella* Clem. *pomonella* Pack. *Bucculatrix pomifoliella* Clem. An apple leaf feeder, as the name indicates. Fig. 28.

Expanse of wings about three-eighths of an inch.

Colors: Pale yellow and brown; *a* in the figure represents a twig with cocoons attached, *b* a cocoon detached, *c*, the moth greatly magnified.

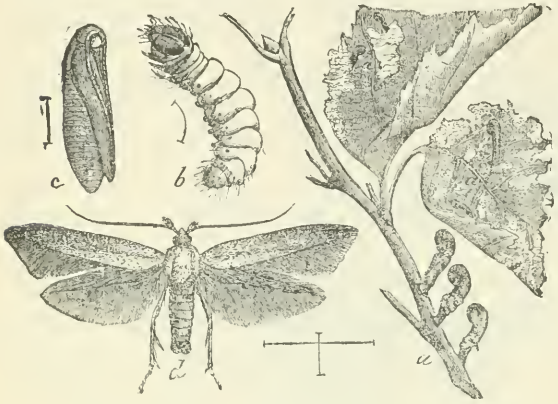

Fig. 27.

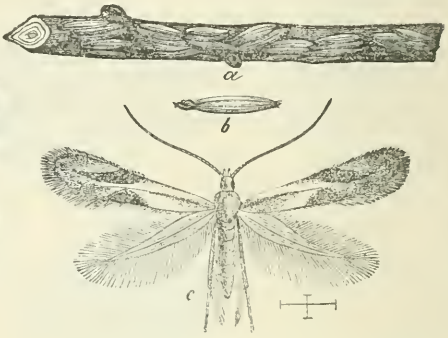

Fig. 28.

Gelechia Zell. *pinifoliella* Cham. *Gelechia pinifoliella* Cham. The Pine tree leaf-miner. Fig. 29.

Expanse of wings about three-eighths of an inch.

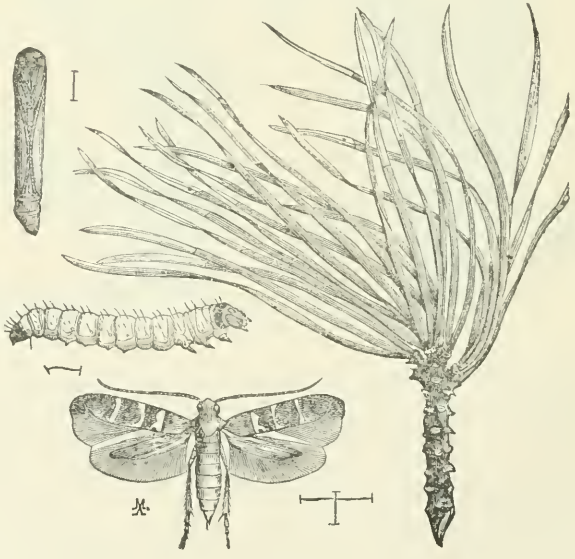

Fig. 29.

Colors: Front wings brownish yellow, dotted with fuscous, the lines crossing the wings white; hind wings pale gray.

The figure represents the insect in its various stages greatly magnified, and a terminal shoot showing the mischief done by this tiny creature. (See Fourteenth Annual Report.)

THE HORN-FLY. (*Hæmatobia serrata.* Rob.-Desv.)

By James Fletcher, f.l.s., f.r.s.c.

During the past summer a new pest of the farmer has made its appearance in Canada in the shape of a small blackish fly which appeared suddenly in enormous numbers on cattle, and was first noticed in Canada towards the end of July at Oshawa, Ont., by Mr. Elmer Lick, who sent specimens to me for identification. Almost simultaneously it was recorded all along the boundary line, from Essex County, Ontario, as far east as Boucherville, P.Q., below Montreal. The flies appeared in such enormous numbers, and their attacks upon the cattle were so severe that farmers in the districts invaded at once recognized the losses they might incur by neglecting to take steps to protect their stock. Letters of inquiry came in from all directions asking for remedies and information concerning the habits of the fly. Much alarm was felt by stock-owners, and grossly exaggerated statements received wide circulation as to the injuries which had been inflicted upon cattle of all kinds by the fly. Such complaints as the following, which are

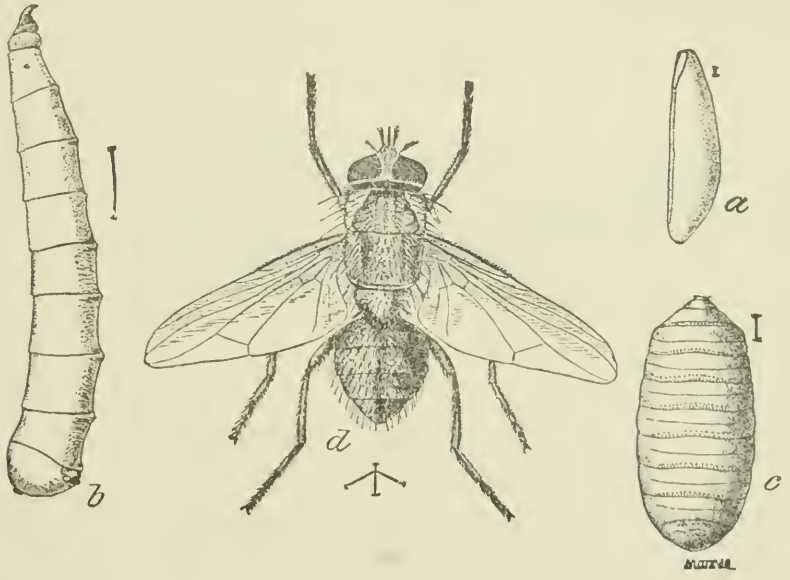

Fig. 30.

The Horn-fly. *a*, egg; *b*, maggot; *c*, puparium; *d*, adult fly in biting position—all enlarged. (Figure kindly lent by the United States Entomologist.)

actual reports I received, were by no means rare: "All the cattle in this district are being destroyed," "cows through the country are dying by hundreds," "several farmers have lost their cattle entirely," and a great many reports stated with more precision, that "neighbors" had lost from two to twelve (the favorite number being seven). Whenever these reports came in, I endeavoured to find out the name of the "neighbor," so as to trace up the true history of the case; but in no instance could I find a man who had actually lost a single animal from the attack of the flies. It was always "some other neighbour" or "I did not lose any myself, but I was told that someone else had." In fact, although this insect was undoubtedly the cause of much loss of revenue to farmers, as stated above, I have been unable to hear of even one instance where an animal was killed by its attacks. However, these exaggerated accounts of the possible loss served a very useful end, by stirring up negligent farmers to take some steps to protect their animals from the irritating attacks of their troublesome enemies. There was much cor-

respondence in the newspapers, and the irrepressible "practical man" (self-styled) came bravely to the front with useless suggestions, and, as usual, very soon showed the true nature of the occupant of the lion's skin. Inaccurate statements as to the life history of the insect gained wide credence. Of these the following is a sample: "The eggs are laid either on the horns, into which the maggots bore and then penetrate the skull, or in the holes which they eat through the hide, lay eggs therein, which hatch out in large numbers, and proceed with their boring operations until the vital portions of the cow are touched and death ensues." None of this is founded upon fact. The complete life-history has been worked out, and at once shows us the absurdity of such theories. The maggots do not feed upon flesh at all, but upon the manure of the cattle, and on this only while it is in a fresh and moist condition.

It is in the perfect state alone that the Horn-fly is troublesome to stock, and the only injuries are those which result from the irritation of its bites. These, however, are sometimes considerable, for the flies occur in such enormous numbers, and worry the cattle so incessantly, that these fall off rapidly both in flesh and yield of milk, this latter product being reduced in some cases from one third to one half. The appearance of this insect amongst our Canadian herds is, therefore, a very serious matter, and one that demands the attention of all stock-owners, so that prompt steps may be taken early in the spring to wage an incessant and systematic warfare against it upon its first appearance. There are certain simple and easily-applied remedies which may be used successfully to mitigate the attack, and if all would apply them, its numbers could be controlled with comparative ease.

For the intelligent application of suitable remedies, it is most important that the true and full life-history of the pest should be understood. It is briefly as follows:

The eggs, (Fig. 30*a*) which are about 1-20 of an inch in length, are laid singly on the freshly-dropped dung of cattle. They are brown in colour, and from this fact, not easily seen where they are laid. The young maggots hatch in less than 24 hours and at once burrow down a short distance beneath the surface of the dung, where they remain until full grown, that is, about a week, when they are about $\frac{3}{8}$ of an inch in length, white, and shaped as shown at fig. 30*b*. When full-fed they burrow a short distance into the ground and assume the pupa form (fig. 30*c*.), when they are $\frac{1}{8}$ of an inch in length. In hot weather the pupa state lasts only four or five days; but the last brood of the season, from eggs laid in September, passes the winter in that condition a short distance beneath the surface of the ground, and the flies emerge the following spring. The perfect insect (fig. 30*d*, male) is shaped very much like the common Cattle-fly (*Stomoxys calcitrans*) with which it is closely related, or the House-fly (*Musca domestica*). It is, however, much smaller, being only $\frac{1}{6}$ of an inch in length or about $\frac{1}{3}$ the size of those insects. With regard to the common Cattle-fly (*S. calcitrans*) there is an idea which is quite erroneous, but which is very prevalent among those who do not understand much about insects, that this is merely the common House-fly, which towards autumn acquires the bad habit of biting. It is much more abundant in autumn and from its annoying bites and frequent occurrence in houses is sometimes called "Biting House-fly." The true House-fly (*Musca domestica*) never bites, having only a sucking tongue with a flat disk at the tip, whilst the Cattle-flies have a sharp-pointed proboscis, which is really a case containing a slender lancet, with which they penetrate the skin of animals and suck their blood. When not in use this shining black dagger is carried projecting forward beneath the head, but when in use is turned down straight beneath the head of the fly and inserted into the tissues of the animal which is being attacked. The details of this complicated organ are fully explained and illustrated by Prof. J. B. Smith in Bulletin 62 of the New Jersey Agricultural Experimental Station.

The Horn fly is, without any doubt, a new pest in Canada, which has come to us from the United States. It is a European insect which was first brought to the notice of the U.S. Division of Entomology in 1887, and was probably imported with cattle from Europe, where it has been known since 1830. In 1889 its complete life history was worked out by Prof. Riley and his assistants, Messrs. L. O. Howard and C. L. Marlatt. This was published in "Insect Life," vol. II., pp. 93-103, and in the annual report of the

U.S. Entomologist for 1889 and 1890. Prof. J. B. Smith, of New Jersey has published a very full account of his investigations of the same subject in New Jersey Agricultural Experimental Station Bulletin No. 62. The figures used in this article have been very kindly lent for the purpose by Prof. Riley.

The color of the Horn-fly is dark gray with yellowish sheen, and the body is covered with black bristles. The head consists almost entirely of the dark-red silvery-edged eyes. It will be at once distinguished from the common Cattle-fly by its darker colour, smaller size, greater activity and, above all, by the characteristic habit from which it takes its name, of gathering in clusters upon the horns of cattle, particularly upon the upper side. When very abundant the flies form a more or less complete ring around the horn, sometimes extending two or three inches from the base towards the tip, as shown in fig. 31. This clustering on the horns seems to be peculiar to the species, and is probably due to some special characteristic. They merely settle there, however, as a convenient resting place, from which they cannot be easily dislodged by the animal; for the same reason, they also congregate in clusters at the base of the tail and on the neck. Strange to say, while the closely allied *Stomoxys calcitrans* bites the legs of cattle very much, the Horn fly very seldom settles there, and while the *Stomoxys* bites men, dogs and horses, the present

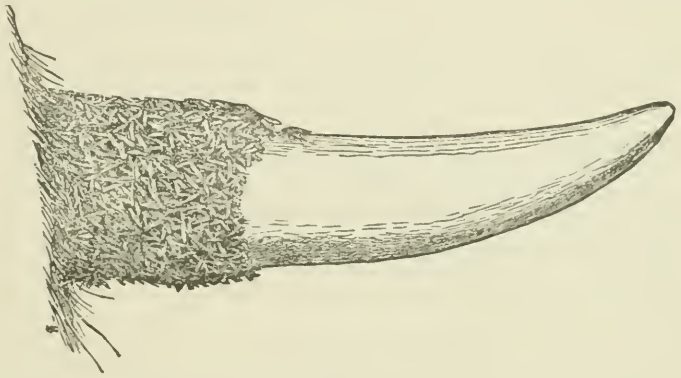

Fig. 31.

Cow-horn showing band of resting flies—reduced.

(Figure kindly lent by the United States Entomologist.)

species has not been recorded to give trouble in that way. A milkman, however, told me that on one occasion he was much bothered by Horn-flies biting his bare arms when milking, and that the bite was much more severe than that of the common Cattle-fly. It is probable that they will occasionally bite human beings, particularly when, as in the above instance, working with bare arms among cattle, and thus getting their odor on the skin.

Cattle of all breeds are subject to annoyance from this pest, but I have observed very great differences in susceptibility to injury, not only in different breeds, but also in individual animals of a given breed according to the health of the animals, temperament or the texture of their skins.

When feeding, the flies work their way down through the hairs until they can pierce the skin of their victims with their short beaks. They are exceedingly agile, and when biting keep their wings partly spread, ready to take flight at the least disturbance. A slash of the tail or a swing of the head of a bitten animal only disturbs its tormentors for a second, when they will rise in a cloud but to settle again and resume the operation of torture the next instant. The bites seem to produce great irritation, and sores are frequently formed on the necks and bodies of animals by their rubbing themselves against posts or trees or by licking bitten places, where the irritation cannot be allayed by rubbing, as inside the thighs, around and on the udder and along the milk vein.

This insect has great powers of increase. It appears early in the spring from the pupa cases, having passed the winter under ground, and also probably some specimens pass the winter in the perfect state. It breeds rapidly, only about two weeks being required in summer for each brood to mature, and there are probably six or eight broods in a season. Mr. L. O. Howard found that, at Washington, the time required from the laying of the egg to the appearance of the fly was from 10 to 17 days, and that the fly breeds from the middle of May till the middle of September.

Although only brought under my notice in July last, from enquiries made I have no doubt that this pest has been present on our Canadian stock farms throughout the summer. It was introduced into the United States only six years ago and has spread in all directions over many States of the Union and has now invaded Canada also. It has reached the most southern States and lately as far west as Texas. Curiously, however, long before it had ever reached Texas it was spoken of by farmers as "the Texas fly," and to-day in Canada more enquiries are made concerning it by this name than any other.

Remedies.

Notwithstanding the great loss which will undoubtedly result to stock-owners if they neglect to attend to this new enemy, there is no reason why it should not be kept within control by simple, cheap and well tested remedies. It is a most important matter and one that should be taken up by all Farmers' Institutes and Dairymen's Associations, so that if possible some united effort might be made to control it while the numbers are small in spring, and eventually to stamp it out. All that is necessary is for everyone to try first of all to learn what the true life history is, and in accordance with this to apply the best remedy and try to induce his neighbors to do the same.

The remedies are cheap and easily applied; but will require constant attention to make them effective. They are of two kinds, (1) *preventive*, or such as keep the flies from biting the animals; (2) *active*, or such as aim at the destruction of the insects either as maggots or flies.

1. *Preventive.* Almost any greasy substance will keep the flies away for several days. Lard, train oil, tanner's oil fish oils, with a little sulphur, carbolic acid or oil of tar added, will keep the flies off for from five to six days. The two latter will have a healing effect on any sores which may have formed. Carbolic acid and oil of tar will mix sufficiently well with fish oils if the two substances be placed together in a bottle and well shaken. One ounce of either may be added in two quarts of oil. Axle grease and tallow have been also used to advantage. It may not be amiss to point out that no injury whatever results from the flies settling on the horns, as they only go there to rest, and cannot possibly do the horn any injury. Tar has been largely used to put on the horns of cattle, but it answers no better than the greasy substances mentioned above, and makes the animals in a horrible mess; moreover, if the flies are driven from the horns they merely fly to the animal's body, where they can do much more harm.

The remedy of this class which will eventually be found to be the best, is the mixture known as the Kerosene Emulsion, which consists simply of a mixture of soap-suds with twice the quantity of ordinary coal oil, made as follows: Boil two ounces of common soap in one quart of rain water until the soap is dissolved, then turn it into two quarts of coal oil and churn it violently with a syringe or force pump for five minutes, when it will be of a smooth, creamy nature. This gives the stock emulsion, which must be diluted before using with nine times its measure (that is 27 quarts) of water. It will mix much more easily with the water if done at once, before the stock emulsion cools. This mixture may be applied to the animals either by means of a sponge, or, what will certainly be found most convenient where there are many animals to treat, by means of a force pump and spraying nozzle. This can be done in a few minutes after milking, and one or two pints will suffice for each animal.

2. *Active.* Of applications to destroy the perfect flies, several have been recommended, as pyrethrum powder, tobacco dust, etc., but these are little if any better than the kerosene emulsion, which when sprayed over cattle killed all the flies reached and prevented others from coming for from three to seven days. But these remedies for the destruction of the perfect flies are only to be advised for use upon the first appearance of the pest in a new locality, or early in the season for the destruction of the first brood. The true way to fight this enemy is by the treatment of the cattle droppings so as to destroy the eggs and larvæ. The maggots can live in the dung only while it is in a moist condition. Any means, therefore, which will ensure its drying up will destroy them. For this purpose, lime, land plaster, and wood ashes are suggested. The last named of these will probably be found the best, not only from its strong alkaline properties, which are destructive to insect life, but also from its great value as a fertilizer, and the ease with which it can usually be obtained on every farm.

Messrs. Riley and Howard state that "throwing a spadeful of lime upon a cow-dung will destroy the larvæ living in it. If the evil should increase, it will well repay a stock raiser to start a load of lime through his fields occasionally, particularly in May or June, as every larva killed then represents the death of very many flies during July and August. We feel certain that this course will be found in many cases practical and of great avail, and will often be an advantage to the pasture besides."

I believe that Canadian wood ashes would be far superior to lime, and if neither of these were easily obtainable, a good shovelful of dry earth or road dust would soon absorb the moisture necessary for the development of the larvæ.

Of all the remedies I have tried or seen suggested, the one which commends itself to me as the most practical is by Prof. J. B. Smith, who says: "By sending a boy over the pasture every other day with a shovel to thoroughly spread out the cow-droppings, all eggs and larvæ would be destroyed." I think if this were done twice a week it would be sufficient, and the remedy would be equally effective in wet weather, when the substance would be washed away, as in dry when it is dried up.

Spread of the Horn fly.—A correspondent in Uniontown, Pa., writes us that the Horn-fly has made its appearance in that vicinity, having first been noticed last season and having become very abundant the present summer. While spending a few weeks in Greene County, N.Y., we noticed this insect in comparative abundance, but not yet numerous enough to attract attention by the habit of congregating upon the horns. Another new locality has been given us by Mr. J. H. Woodruff, of Watertown, Conn., who has found the fly to be very abundant in his vicinity, and still another locality is Waller County, Tex. We are indebted to Mr. F. W. Thurow for specimens from this region. During the month of August complaints have also come in from quite a number of correspondents, among others from the following: Elisha Slade, Bristol County, Mass.; Miss E. J. Phillips, Cuyahoga County, Ohio; George L. Oliver, Otsego County, N. Y.; Devoe and Shumway, Montgomery County, N.Y.; T. C. Ross, Jefferson County, Iowa; B. F. Koons, Tolland County, Conn.; I. N. Rauls, Citrus County, Fla. — *Insect Life*, Sept., 1892.

CLOTHES MOTHS.

By James Fletcher, F. L. S., F. R. S. C.

In a northern climate, with such winters as we *enjoy* in Canada, furs and woollen clothing are indispensable. Only too well known to all housekeepers are the miserable little creatures which in their various forms and different species are grouped under the name of Clothes-moths. There are few indeed who have not felt the irritation of finding at some time irretrievable damage had been committed in the family supply of winter clothing, particularly of woollen underclothes, socks, mitts and furs, which it was thought had been "peppered and put safely away last spring before the moths appeared," to say nothing of the stripped patches of carpet under the piano and sofas, or even of the little

holes which had appeared suddenly in the pater-familias' dress suit, that had only been left out "for a few days after he came back from his summer holidays." All of these ills are only too well known to most people, and it is one of the grim satisfactions of careless people that at any rate the most careful get sometimes caught.

There has been very great confusion concerning the proper identification of the different caterpillars of moths which injure clothes in houses, and this confusion has been much added to by the absurd name Buffalo moth or Buffalo carpet moth, which has been given to the imported carpet beetle, *Anthrenus scrophulariæ*. In an account given in our Annual Report for 1873, there are evidently two species confounded. The whole matter was carefully revised by Prof. Fernald in 1882, and the synonymy given, together with descriptions of the three species which are found in North America, in CANADIAN ENTOMOLOGIST, Vol. XIV, p. 166. There is also an excellent illustrated article by Prof. C. V. Riley in *Insect Life*, Vol. II, p. 211. Figs. 32 and 33 used in that article have been kindly lent by Prof. Riley.

Of the three species mentioned, two only have come under my notice in Canada as household pests. Of these by far the commonest is the small creamy white or buff coloured moth, *Tineola biselliella*, Hum. This species Prof. Fernald tells us, was separated from the genus *Tinea* by Herrick Schæffer because of the absence of the maxillary palpi. The small moths (Fig. 32), less than a quarter of an inch in length, are extremely active, flying and running rapidly to hide when disturbed. The head is dull ochreous yellow; the forewings paler and of a silvery sheen without any spots. The under wings are of a slightly different shade of color. The minute yellowish eggs are laid upon the substance which is afterwards to be the food of the young caterpillar. Immediately upon hatching, the tiny caterpillar spins a silken path upon which it travels in search of food. It never, however, forms a case, as is done by the next species to be described, until it is full fed, when it makes a cocoon generally of portions of the material upon which it has been feeding. The food of this troublesome insect is very varied, but consists mainly of fabrics composed of animal hairs; any clothes packed away in a soiled condition are much more liable to attack than those which have been well shaken and brushed. Carpets are often attacked, particularly in darkened rooms and under heavy pieces of furniture which cannot be easily moved, and where therefore frequent sweeping is not possible. Dust in the cracks of floors and under skirt-boards provides a constant supply of food for this insect, and the active little moths penetrate drawers and boxes through very small fissures. Sable-hair paint brushes seem to be a special delicacy for these little fiends, to which, however, few things in the shape of animal hair come amiss. Some instances of their injuries which have been reported to me are the following: the felt facings of the dampers and hammers of a piano were so destroyed in a single summer as to necessitate a complete renewal; another instance of considerable injury from this little enemy was the cutting of the woollen cord by which a large and valuable picture was suspended; the picture fell and was not only injured itself, but did considerable damage to other objects beneath it.

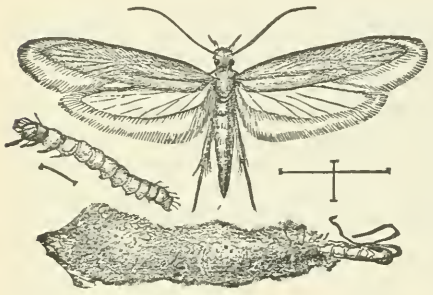

Fig. 32.—*Tineola biselliella.*

Frequently collections of insects suffer from the depredations of *Tineola biselliella*, and I have in my collection not only *Lepidoptera*, of which the wings have been destroyed, and several locusts, to which it seems very partial, but what seems to me very remarkable, a large greasy specimen of *Necrophorus orbicollis*, of which the interior has been eaten out, and the only indication of the marauder is its empty pupa case, protruding between the head and thorax of the beetle.

The white grub-like caterpillar of this species never forms a true case as does that of another species, *Tinea tapetzella*, which makes for itself a silken gallery mixed with

fragments of the material it is destroying; but it spins a more or less complete silken tube through the hair when attacking fur.

Although the moths appear throughout the summer, it is stated that there is in the north only one brood in the year, but I think this can hardly be the case, and, although I have this season failed in rearing the young caterpillar from the egg, a brood hatched early in June contained some specimens which were 4.50 mm. by the middle of August, when the whole of them died without any apparent cause; and the perfect insects were to be found flying from the month of May until September the 28th. The caterpillar attains full growth in autumn, when it builds for itself a close cocoon in which it remains unchanged until spring For this purpose it occasionally takes other materials than those it has been feeding on. I have one cocoon composed of asbestos fibres which were in a drawer with some paint brushes that had been destroyed, but the asbestos fibre alone had been used in the formation of the cocoon. Another cocoon is composed of fibres of cotton wadding and the caterpillar had apparently subsisted almost entirely upon the gummy coating with which the surface of the wadding had been dressed.

Tinea pellionella is thought by Prof. Riley to be the commoner species in northern regions, but this has not been my experience. In fact, it has only been sent to me from Nova Scotia, New Brunswick, and on one occasion from Toronto. In this latter case, it had certainly been recently imported from England. In Prof. Riley's interesting account in *Insect Life*, its habits are thus briefly described: "The small light brown moths distinguished, as shown at Fig. 33 by the darker spots at intervals on the wings, begin to appear in May, and are frequently seen flitting about as late as August. They pair, and the female then searches for suitable places for the deposition of her eggs, working her way into dark corners and deep into the folds of garments, apparently choosing by instinct the least conspicuous places. From these eggs hatch the white soft-bodied larvæ (Fig. 33,), each of which begins immediately to make a case for itself from the fragments of the cloth upon which it feeds. The cases are in the shape of a hollow roll or cylinder, and the interior is lined with silk. As they grow, they enlarge these cases by adding material to either end and by inserting gores down the sides which they slit open for the purpose. The larva reaches its full growth toward winter and then, crawling into some yet more protected spot, remains there torpid through the winter within its case, which is at this time thickened and fastened at either end with silk. I have known these larvæ in autumn to leave the carpet upon which they had fed, drag their heavy cases up a 15-foot wall and fasten them in the angle of the cornice of the ceiling. The transformation to pupa takes place within the case the following spring. The heat of a dwelling-house does not seem to affect the development of the pupæ, but the caterpillars remain unchanged till spring even in a highly heated office."

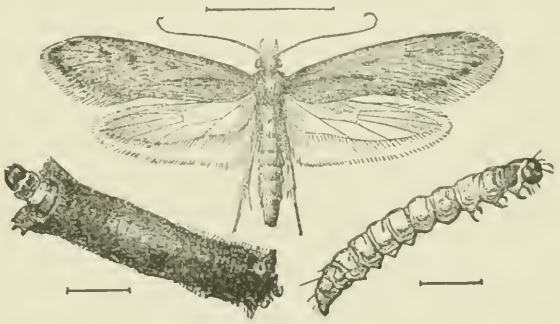

Fig. 33.— *Tinea pellionella* — enlarged.— adult; larva; larva in case (after Riley).

With the exception of the difference in making their cases, the habits and injuries of these species are very similar, and the same remedies will apply for both. A most interesting experiment, demonstrating the manner in which the case of *T. pellionella* is made, can be tried by providing the young caterpillars with different colored materials for making their cases. I have cases showing rings formed from scarlet and black wool, blue peacock's feathers and white lamb's wool.

Perhaps the most remarkable result of the work of any insect which has ever come under my notice, was a piece of a pillow-case which was sent to me by Miss Lucy C. Eaton, of Truro, Nova Scotia. The specimen at first sight has the appearance of beau-

tifully soft grey velvet or short plush. The surface is perfectly even and very smooth to the touch. Since the specimen was received I have shown it to a great many, and until placed under the microscope together with one of the feathers with which the pile was made, it has proved altogether too much for anyone's credulity to believe that it was the work of insects. When magnified, however, the identity of the minute threads of the pile with the portions of the plumules of the feathers with which the pillow-case had been formerly stuffed, is made quite evident. The pillow-case was made of ordinary strong cotton ticking, conspicuously striped with wide blue, and narrow black and red stripes. After the remarkable operation described below the blue and red stripes were entirely obliterated, and the black stripes could only be discerned faintly through the feather felting. Miss Eaton gives the following particulars with regard to this new fabric:

"The pillow was made in the fall of 1889 and was filled with turkey feathers, which as you probably know are very downy near the base, and it is with portions of this down that the pillow is covered. The pillow was made in 1889 and I opened it in the winter of 1891, during that time it had very little actual use. People who slept on this pillow made no remarks about it; but I found it in the morning more often on the floor than in the bed. It remained for about six months in an unused room, when one day thinking nothing of the matter I placed it on my own bed and I found that I actually could not sleep for the noise, which was like something crawling slowly back and forth. I turned it over several times; but it always seemed right under my head. Then I began to think that I had discovered the reason why other people had thrown it on to the floor so often, and I myself threw it out of bed. I then left it alone for about six weeks and tried it again; but the noise was still there. I then put it on one side thinking that when I had time I would open it and get the insects for my collection. It was some time before I found a convenient opportunity, I then took it into an empty room, put a sheet on the floor and cut open the pillow-case and was much surprised to find it in the condition you see by the specimen I send you. The feathers were entirely stripped of their down. It was the insects I was looking for though, so I stirred the feathers up with a stick and the fine particles of down rose in such a cloud, that I was obliged to tie a towel over my nose and mouth to keep from being choked. From the noise that I had heard and the destruction, I looked for an insect about the size of a grasshopper at least; but saw nothing but the little thing I send. There were about a hundred; but I saved only a few. I could not believe that I had found the right insects, I thought they must be larger. I did not actually see the insects alive amongst the feathers but only found the cocoons."

Miss Eaton kindly forwarded me specimens of the injured feathers and also cocoons of the moth *Tinea pelli mella*, which she had taken from the pillow. These cocoons show under the microscope that they, like the felting of the pillow-case, are also composed of the debris of the injured feathers. The minute bristles of the plumules of feathers, when examined under a microscope show plainly their barbed nature by which they serve so admirably the purposes required of them in causing the plumules to adhere lightly to those touching them in the feather to which they belong; but at the same time allowing the plumules to be separated without injury, and then binding them together again. It is owing to these very barbs on the particles, that the felting of the cotton pillow-case was possible, the feathers having been cut up into fine morsels, these are rendered sufficiently rigid in proportion to their length to work their way through the feathers little by little, every time the pillow is moved, by reason of their barbs which all point one way, until the pillow-case is reached, here, if short enough, they work their way a short distance into the cotton cloth and remain fixed there by their barbs. The beautiful evenness of the pile is, I imagine, due to the fact that unless the particles are very short they will not be

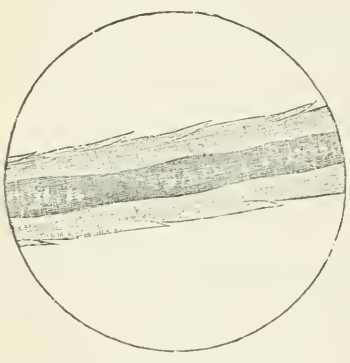

Fig. 34. Beaver fur magnified 250 diameters.

rigid enough to work their way through the feathers and into the cloth. This barbed character is found also in the hair of many animals, and is taken advantage of in the making of felt as was formerly done from the hair of the beaver, for making the shapes of hats. This is fully explained and a magnified illustration, (Fig. 34.) is given, of the hair of the beaver in Mr. Horace T. Martin's new and excellent work "CASTOROLOGIA" where, not only this, but almost every other imaginable information about the beaver is to be found.

Miss Eaton also sent some specimens to the Smithsonian Institution and to the United States Entomologist. In *Insect Life* Vol. IV., p. 404 the matter is referred to and some interesting data are given of similar work by other insects, as follows: "There is occasionally sent in to the National Museum or the Department of Agriculture, a sample of the felting of bits of feathers into the substance of bed ticking or pillow-casing which is said to have been done by some insect. This felting is frequently very beautifully done, and the inside of the cloth next to the feathers appears like a velvet tissue. Ordinarily the breaking up of the feathers which results in this felting, is done by *Attagenus piceus*, a Dermestid beetle which is particularly fond of feathers. We have just received a very fine specimen from Lucy C. Eaton, of Truro, Nova Scotia, in which the work was done by *Tinea pellionella*, one of the commonest of the northern clothes moths. It must be remembered in these cases that the felting is not done by the insects, but by the mechanical action of the feather barbules themselves. When the feathers have once become broken up into small bits by the action of the insects, then through the constant pressing together of the pillow they gradually work themselves into the cloth covering in which they are held by their microscopic retrorse serrations. To one who looks at a fine specimen of this accidental felting, there can not fail to come the suggestion that feathers could be commercially used in this way. The matter has been occasionally referred to in print, notably in the *American Naturalist* for December, 1882, and in *Insect Life*, Vol. II., pp. 317-318, another instance is given of the felting of a pillow-case from duck feathers which had been destroyed by Dermestid beetles. It is described as being 'entirely covered with a fine growth of down as evenly and thickly as the fur on a mole-skin, which it very much resembles; it is firmly attached, the down breaking rather than pull off."

The editor of *Insect Life* stated at that time: "Pillows in which this felting of the ticking occurs have been infested by one of the Dermestid beetles, (in all of the cases with which I am familiar it has been *Attagenus megatoma*) whose work has resulted in the comminution of the feathers, and the felting results from the subsequent mechanical action. The small feather particles are barbed, as you are aware, and, whenever caught in a cotton fabric by their bases, become anchored in such a way that every movement of the pillow anchors them still further."

In addition to the above the following interesting information is given:

"A similar bit of ticking was exhibited at the Philadelphia Academy of Natural Sciences, April 5th, 1883, and elicited the information that one of the members had some years previously examined a similar material known to have been formed from the fragments of gull feathers, and that a cloak had been made from it which wore well."

With regard to the distinctive differences between these three troublesome immigrants from the old world, it may be well to mention the following points:

1. *Tineola biselliella* is the same insect as has been frequently treated under the name of *Tinea flavifrontella*. This is the commonest species in Canada. The caterpillar spins only a silken path or tube over the surface of, or through, the article attacked. The moth is pale yellow without spots, and when at rest, it holds its wings slanting. Fig. 32.

2. *Tinea pellionella*. The caterpillar of this species from the very first lives within a case, which it carries about with it; the moth is darker in colour with a few black spots on the wings, which lie flat on the back when the insect is at rest. Fig. 33.

3. *Tinea tapetzella*. The caterpillar of this species spins for itself a silken gallery mixed with fragments of the material it is attacking. It remains at all times hidden within this gallery. The moth is easily distinguished from the others by the front wings which are black from the base to the middle and white or gray beyond.

Remedies. With regard to remedies for these troublesome insects, there is nothing better than giving the clothes, furs, etc., a thorough beating and brushing, and then packing them away in spring, if possible before the moths appear. They should be folded neatly and wrapped in strong paper; of course if the edges are pasted, so much the safer. I have seen in the City of Detroit large paper sacks prepared specially to keep out moths, in which dresses can be hung up without folding. In *Insect Life*, Vol. II, page 214, a plan of Mr. L O. Howard's is recommended: "He buys for a small sum from his tailor a number of paste-board boxes in which they deliver suits, and his wife carefully folds and packs away all clothing, gumming a strip of wrapping paper around the edges of the cover so as to leave no crack. These boxes will last for a lifetime with careful use. Others use for the same purpose ordinary paper flour sacks or linen pillow-cases, which answer well. The success of these means depends entirely on the thoroughness of the preliminary work."

As many have found to their sorrow, camphor, pepper, cedar chips, and that abominable malodorant naphthaline, do not kill the insects and are only partially successful in keeping them away.

When carpets are found to be attacked, the furniture should be removed, the carpet thoroughly swept and the edges of the room freely sprinkled with benzine or gasoline. But as both of these liquids are extremely inflammable, great care must be taken, not to take a light into the room until some hours afterwards or until the room has been thoroughly aired. In the case of upholstered furniture or carriage linings, these may be sprinkled freely with gasoline, which will destroy the insects in all stages, and the unpleasant odor soon disappears when the articles are left in the open air. Prof. Riley recommends for carriage linings sponging them with a dilute solution of corrosive sublimate in alcohol, made only just strong enough not to leave a white mark on a black feather. The extremely poisonous nature of this substance, however, demands that the greatest care should be exercised in its use.

For clothes which may have to be used only occasionally during the summer, it is well when the house is known to be infested, to hang them in some place where they will not be forgotten and will be frequently moved.

THE WEB-WORM TIGER (PLOCHIONUS TIMIDUS, HALD).

By Mary E. Murtfeldt, Kirkwood, Mo.

It would seem appropriate that this hitherto somewhat rare and inconspicuous little carabid should be brought to notice in its new *role* of a benefactor.

I have been observing its habits for two years, and am confident that to it, more than to any other agent, do we, in the neighborhood of St. Louis, owe our present comparative freedom from the Web-worm nuisance. Whereas formerly almost every other tree would, at this season of the year, be infested with one or more of the disfiguring nests, they are now so few and far between that it requires some search to find one. I was particularly struck with the difference, in this respect, between this section and the Atlantic slope, on my journey to Washington last August, the eastern woods and orchards being in many places almost defoliated and presenting a very unhealthy and unsightly appearance from the ravages of this insect.

It is impossible, of course, to ascertain just when or how the beetle under consideration acquired the habit of preying upon the Web-worm; but I think it could not have been much previous to its discovery. In 1888 *Hyphantria* was abundant in Kirkwood, and for the purpose of obtaining fresh specimens of the moth, as well as of its usual parasites, I transferred a colony from a box elder tree to the rearing cage. From these a large number of perfect insects were bred and also parasites of two or three species, but no larvæ or imagines of *Plochionus* were observed.

Early in June, 1890, I had been struck with the wasting away of one or two colonies of *Hyphantria* and was about to examine into the causes, when I received from Mr. J. C. Duffey, the Horticulturist of the Shaw Botanical Garden, a note informing me that larvæ of a small carabid had been found in a nest of Web-worms, upon which they were evidently feeding. Accompanying this communication was a box containing one of the infested colonies. Unfortunately the box had been broken in transit, and when I called for my mail the Web-worms were pervading the office, and the distracted postmaster was engaged in a vain attempt to confine them in a newspaper, and expressing himself with some emphasis concerning the sort of mail posted by entomologists. Undoubtedly many of the predaceous larvæ escaped with the caterpillars, but upon examination, after reaching my study, I found seven or eight of the larvæ in the fragments of the web and a sufficient number of Web-worms to afford them sustenance. Placing them on fresh leaves in a small rearing cage on my desk, I soon had ocular verification of Mr. Duffey's interesting observations.

The *Hyphantria* larvæ had all passed the last moult and many were nearly full grown; the carabids were also nearly mature, varying in length from one-fourth to one-third inch, somewhat alligator-shaped, the head provided with sharply pointed trophi, with rather long and strong legs, the body above dark and horny; they had quite a formidable aspect. By preference this larva attacks its victim from the front, biting into the under part of the thoracic segments; but in many cases I have seen it seize hold of the side of a caterpillar, into which it would soon almost bury its head, and not the most violent contortions on the part of its prey were of avail to dislodge it. By the time its appetite was appeased the Web-worm would be fatally injured and a fresh one would be required for its next meal In this way one beetle larva was capable of destroying a great number of the worms in the course of its development. The two species, web-worm and carabid, reach maturity about the same time, the period of carabid adolescence being about one week less than that of the insect on which it preys. The change to pupa takes place both on the surface of the ground and in the remnants of the web on the tree—in the latter case it (being very soft and white and not enclosed) is subject to destruction by birds and other insects. The beetle appears in from eight to ten days after the change to pupa, and requires a day or two to acquire its dark brown color and the firmness in texture of maturity. It is very swift and furtive in its movements and remains hidden as far as possible during the daytime, but is, even in the rearing cage, quite active at night, using its wings freely. It feeds, sparingly, on aphides and similar soft insects. This season I found it in considerable numbers in the two web-worm nests that occurred in our orchard, and to test its destructive capacity I placed thirty-six three-fourths grown *Hyphantria* larvæ in a large glass jar, with three nearly mature *Plochionus* larvæ. A large number of the caterpillars were killed in the course of the following week, and from the three dozen larvæ I bred seven parasites (*Meteorus hyphantriæ*) and but three moths; the remainder had evidently succumbed to their coleopterous foes, all three of which developed into fine beetles.

I believe the perfect insect occurs sparingly in many sections of the country, but it may not in every locality acquire the habit of preying on *Hyphantria*. It is to be hoped, therefore, that the divergent type will slowly spread from State to State until it, in connection with other predaceous and parasitic species, will practically relieve us of one of our most prominent arboreal pests.

NOTES ON KILLING, PRESERVING AND RELAXING INSECTS.

By James Fletcher, Ottawa.

There is perhaps no statement more frequently made to entomologists by observant travellers, or those who live in localities far removed from civilization, than "O! I wish

you had been with me, I so often saw lovely insects; but I did not know how to save them for you." From novices the enquiry often comes, "What is the best way to relax specimens after they have become dry."

Killing and Preserving. Having collected a specimen the first thing, of course, is to kill it. For beetles and hard-bodied insects nothing is simpler than to drop them for a second or two in scalding water; they must be taken out again at once and dried on blotting paper, or upon a cloth. The easiest way, however, for killing all insects is to make a "cyanide bottle." This may be made either by placing a small quantity of cyanide of potassium in the bottom of a wide-mouthed bottle and pouring in sufficient wet plaster-of-paris to cover it; or a hole can be hollowed out in the cork and a piece of cyanide inserted. This can be kept in a place either with a plug of cotton wool, or a piece of chamois leather or linen may be tied over the cork. It must be remembered that the active principle of cyanide of potassium being prussic acid it is intensely poisonous—any left on hand after the bottle is made should be at once destroyed.

Insects put in this bottle will be killed in a few seconds by the poisonous fumes given off by the cyanide of potassium; they should then be taken out and packed away whilst soft and pliable. After a few days they become dry and are very easily broken. If there are only one or two specimens these may be wrapped in soft paper or cotton wool, and put away in a suitable box. If the collector, however, is likely to get several specimens, it will be well to prepare a box or bottle on purpose. Beetles or bugs may be preserved for a long time in clean saw-dust dampened with alcohol; grasshoppers, ants, wasps, bees, flies, etc., although they are far better preserved by being pinned at once after killing, may be packed away like beetles and bugs in tubes of paper. These are made by winding two or three thicknesses of a strip of paper one and a half inches wide around a lead pencil, leaving about one-quarter inch over the end, which is turned in and pressed flat before taking the case off the pencil. Into this short, hollow tube drop the specimens and turn in the other end with the tip of a pencil, or fill up the mouth with a plug of cotton wool. Several specimens, according to their size, may be placed in each tube, and the date and locality having been written on the outside they are ready to be packed away in a dry place. Being slightly elastic and very light they pack closely, and a large number can be sent by mail at the same time.

Moths, butterflies and dragon-flies may be killed in the ordinary "cyanide bottle," and then placed in three-cornered envelopes made by taking small squares of paper and folding them across, almost in the middle, so as to make a triangular form with one flap a little smaller than the other; when the insect is placed between the two flaps, the two edges of the larger one are folded over the lesser, and the specimen is then ready to have the date and locality written on it and to be packed away where it will not be disturbed.

Relaxing. The easiest way to soften insects is simply to place them in a covered jar upon damp sand for from twelve to fourteen hours. A few drops of camphorated spirits dropped on the sand will prevent mould from forming on the specimens. Pinned specimens can be either placed in the sand jar or pinned upon a piece of cork and floated on water in a closed jar, or in a basin with a damp towel over the top. Butterflies and moths stored in the envelopes mentioned above are best relaxed by putting the envelopes carefully without opening them, between the folds of a damp towel placed between two sheets of glass. The cloth should be wetted and then wrung out as dry as possible with the hands. Fold it smoothly and spread out the envelopes separately between the folds. Small butterflies and moths will relax in twelve hours and the largest in twenty-four hours. Beetles and bugs in paper tubes may be dropped into warm water and will be ready for setting in a few minutes; wasps, bees and flies should be placed in the sand jar to soften. Mr. W. H. Harrington, who uses these tubes extensively for all kinds of insects, finds that specimens can be conveniently relaxed by putting the tubes on a piece of wet blotting paper in the bottom of one saucer with another inverted over the top. The advantage of this plan is that if specimens should be accidently forgotten, or it should be inconvenient to mount them at once, the small amount of moisture soon evaporates, and there is no danger of mould.

THE MOLE CRICKET—GRYLLOTALPA BOREALIS.

By E. W. Doran, College Park, Md.

In the Report for last year, page 87, Mr. James Fletcher had an interesting article on his "pet" mole cricket (Fig. 35). At his suggestion I send a few notes upon the larval form of the same species.

On January 4 last, Mr. A. I. Hayward, connected with our State Experiment Station, brought me five larvæ of the mole cricket, which were found in rather a peculiar situation. He had a number of men putting up ice. The ice had been removed from a considerable space, when, wading around in the water with tall rubber boots on, he found the young mole crickets swimming around upon the water. It seems there was no connection between the open space and the land; besides, as the weather was very cold, they could not live upon or near the surface of the ground.

Fig. 35.

The only reasonable theory in regard to the matter is that they were buried in the mud at the bottom of the pond, which is a temporary one, having been flooded with water only a month or two. The wading through the mud dislodged them, when they at once came to the surface. However, there are some difficulties in the way of accepting this hypothesis. For example: Could the crickets exist beneath the water in the soft mud so near the surface for so long a time? Westwood says in regard to the European mole cricket, *G. vulgaris*, that the villose coating of the body and wings appears to protect them from the water. Our species has a similar coating of fine hairs; but in the larvæ especially it seems scarcely sufficient to protect it from the effects of the water in a prolonged submersion. Besides, could it live so long entirely surrounded by water, cut off from the air? They must have been in the thin mud very near the water to have been thus stirred out.

They seemed very little affected by the cold or their bath; in fact, they were as "lively as a cricket," and were apparently very much at home upon the water.

The life history of our American species, *G. borealis*, seems not to have been studied extensively. At any rate I have been unable to find figures or descriptions of the preparatory stages. It is stated that *G. vulgaris* requires three years to come to maturity, and *borealis* seems to be very slow in growth. When these specimens were taken they were but little more than half an inch in length. They are at this time (March 15) about .7 inches long. In two and a half months they have increased in length but little over one-tenth of an inch, though they have been kept in a warm room and supplied with plenty of food, consisting chiefly of the roots of growing wheat, earthworms, etc. As the female deposits her eggs in early spring, they are probably nine or ten months old now. The mature insect is an inch and a half long, while these are but little more than a third as long. Westwood says that *vulgaris* is inactive in winter. These have been active at all times; that is, not in any sense torpid, nor were they when taken.

When I first secured them I put them in a jar of earth, and gave them no further attention for several days. In the meantime one disappeared, and probably served to satiate the appetite of the rest, as they are known to devour their own kind sometimes when they can obtain no other food.

Since then, in exhibiting another before my class, it was accidently injured and died. I shall try to rear the remaining three to maturity, and figure the various stages. I cannot say what stages they have already passed through. The larvæ of *vulgaris* are white before the first moult. These were dark velvety, and had moulted once or twice, I suppose. They have not moulted since.

I have written these notes in the hope of calling out other observations upon the early stages of the insect. And I should be glad to know of any one who has studied or figured the preparatory stages.

THE SONGS OF OUR GRASSHOPPERS AND CRICKETS.

By Samuel H. Scudder.

Everyone is familiar in a general way with the songs of our common meadow grasshoppers and of our crickets. But not everyone is aware that much as with birds each different species may ordinarily be distinguished by its peculiar note or call, if sufficiently close attention is paid to it. Moreover, just as one may recognize in a strange song the general group to which a bird belongs, so in many cases one may tell the group to which a given insect belongs whose note is heard for the first time. Indeed every vocal family of animals utters its distinctive cry. In general the crickets have the highest pitched notes and the short-horned grasshoppers or Acridians the lowest, the long-horned grasshoppers or Locustarians falling between them.

Thus each large family group of the Saltatorial or stridulating Orthoptera* may be recognized by the peculiar pitch of its note. This is perhaps due to the extent of the delicate vibrating membrane of the wings which is brought into action, since this is largest in the crickets and smallest and much broken in the Acridians.

But there is not infrequently some difficulty in distinguishing the song. Indeed in some cases the notes are too shrill to be heard by some ears ; they are beyond their limits of audition. "Crossing the Wengern Alp with a friend," writes Tyndall in his work on Sound, "the grass on each side of the path swarmed with insects, which, to me, rent the air with their shrill chirruping. My friend heard nothing of this, the insect world lying beyond his limit of audition." So when I first went to Europe and heard the song of an Orthopteran new to me, I asked a distinguished student of Orthoptera, walking with me by the bush from whence a volume of stridulent song burst forth, what genus it was ; but he could hear no sound whatever.

Or, again, the notes may be very feeble and be overwhelmed by the volume of other shrilling in the neighborhood. To distinguish them clearly, one must bring his ear to within a few feet, or even inches, of the insect during its stridulation—a process which requires great caution lest the shyness of the little violinist should overcome his egotistic love of song. The observer must walk quietly toward the sound until it ceases, and wait motionless for its renewal ; the direction of the chirping can then easily be determined, although its distance is deceptive. After drawing an imaginary line towards the spot from whence the sound proceeds, cautious steps must be taken around the arc of a wide circle until another line is fixed at about a right angle to the first, and the location of the songster approximately determined. Then walking quickly but quietly to within five or six feet of the insect, the observer will fall upon his hands and knees, and produce a quill edge and file, which, on being rubbed together imitate, with great exactness, the note he has just heard. He will begin his mock stridulation after a short delay; at first the sounds must be subdued and separated by considerable intervals, then loud and repeated in quick succession; usually a response is heard before a minute has elapsed, and sometimes it comes at once. When the insect has forgotten his fears and begins to stridulate violently, the observer may cease operations and carefully approach him. In this way one can place himself within a few inches of any species living in the grass.

Orthoptera stridulate in four different ways : first, by rubbing the base of one wing-cover upon the other, using for that purpose the veins running through the middle of the wing ; second, by a similar method, but using the veins of the inner part of the wing; third, by rubbing the inner surface of the hind femora against the outer surface of the wing covers; and fourth, by rubbing together the upper surface of the front edge of the wings and the under surface of the wing covers.† The insects which employ the

* Very few other Orthoptera stridulate at all.

† A modification of this is given below under *Dictyophorus reticulatus*.

fourth method stridulate during flight, the others while at rest. To the first group belong the crickets; to the second the Locustarians; to the third and fourth certain kinds of Acridians. With few exceptions the males alone stridulate. In general terms one may say:

Crickets shrill and creak.

Locustarians scratch and scrape.

Acridians shuffle, rustle and crackle.

In the following pages we propose to pass in review what is known of our American species in this particular, beginning with the crickets and treating the species in systematic order. In doing this we shall have occasion to make our statements perhaps a little clearer by the introduction of a few illustrations, in which a peculiar system of musical notation is employed. It should first of all be explained that this is done only to express the time limits of the song and the rapidity of the successive notes. As the notes are always at one pitch (which, when specified, has been determined by the aid of a piccolo flute), there is, properly speaking, no *song* at all; but it is to the insect what song is to the bird, and so this tropical use of the word may here be allowed. Each bar represents a second of time, and is occupied by the equivalent of a semibreve; consequently a quarter note , or a quarter rest , represents a quarter of a second; a sixteenth note , or a sixteenth rest , a sixteenth of a second and so on. For convenience's sake I have introduced a new form of rest (or), which indicates silence through the remainder of a measure.

Gryllidae.

Gryllotalpa borealis Burm. This insect, our common mole cricket (Fig. 35, page 61) usually begins its daily chirp at about four o'clock in the afternoon, but stridulates most actively at about dusk. On a cloudy day, however, it may be heard as early as two or three o'clock; this recognition of the weather is rather remarkable in a burrowing insect, and the more so as it does not appear to come to the surface to stridulate, but remains in its burrow, usually an inch below the surface of the ground. The European mole cricket (*Gryllotalpa vulgaris*), is said to chirp both within its burrow and at its mouth (*plerumque sub terrâ*, Fischer says), and it may be that our species sometimes seeks the air in chanting; but the chirp, as far as I have heard it, always has a uniformly subdued tone, as if produced in some hidden recess. Fischer says that the European species which is twice as large as ours, cannot be heard more than from one hundred and fifty to two hundred feet (*ultra spatium 20-30 passuum*). Ours, when certainly beneath the surface, is easily distinguished at a distance of five rods; and one would presume that it could be heard, if above ground, nearly twice as far away. Its chirp is a guttural sort of sound, like grü or grēēu, repeated in a trill indefinitely, but seldom for more than two or

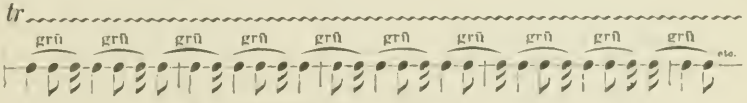

Figure 36—Note of Gryllotalpa borealis.

three minutes, and often for less time. It is pitched at two octaves above middle C, and the notes are usually repeated at the rate of about 130 or 135 per minute, sometimes, when many are singing, even as rapidly as 150 per minute. Often, when it first begins to chirp it gives a single prolonged trill of more slowly repeated notes, when the composite character of the chirp is much more readily detected, and afterward is quiet for a long time. When most actively chirping, however, the beginning of a strain is less vigorous than its full swell, and the notes are then repeated at the rate of about 120 per minute; it steadily gains its normal velocity. Zetterstedt compares the chirp of the European species

to the song of *Hyla arborea*. The note of our own sounds like the distant croaking of toads (Bufo), at spawning season, but is somewhat feebler. McNeill says he has "been struck with the resemblance of its note to that of *Œcanthus niveus*. To my ear the only discernible difference is that of pitch." This song is a simple chirp, very low in pitch for an Orthopteran, repeated at intervals of about a second." I have also observed its resem- to that of Œcanthus, where the latter is heard at some distance.

Gryllus neglectus Scudd. The note of this common cricket, which Saussure regards as only a form of *G. pennsylvanicus* Burm, is *cr-rur-ri*, or *crrri*, or *krrrâ*; the rapidity with which it is uttered seems to vary very much even in a single strain by one insect. Sometimes the notes are produced as slowly as two per second, but they may be twice as rapid; the mean seems to be the usual rate. The note is sharp and shrill and is apparently pitched at E natural, two octaves above middle C.

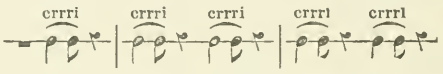

Fig. 37.—Note of Gryllus neglectus.

In listening one night in midsummer to the chirping of insects, I heard two choirs, one on either side of me, separated by a garden fence. The individuals of each chirped together at the rate of about two notes per second, but whether owing to the influence of a warmer situation, or a fuller exposure to the moonlight, one choir invariably chirped a trifle faster than the other, and fourteen seconds elapsed between the perfect accord of the choirs and their complete discord; from this, fourteen seconds more to their former synchronism. These cycles occurred twice per minute, and followed each other with remarkable regularity for about an hour.

The first notes of Gryllus (species undetermined), were heard in Cambridge, Mass., in 1867, on June 15; in 1868 on June 13; but in 1880 (if Nemobius was not mistaken for it), on May 16. I think that in New England all fully developed males that go into hibernation die during the winter and that the earliest stridulation comes from those which have hibernated as pupae.

I may add that when in Cairo, Egypt, early in the month of November, I heard a Gryllus chirping in the early evening when the thermometer was about 67° Fahr. at the rate of about 230 notes per minute; when three weeks later at the same hour, the thermometer standing at 61° Fahr., the notes were produced by what was apparently the same insect at the rate of only 130 per minute.

Nemobius vittatus Harr. The chirp of this cricket is very similar to that of Gryllus and can best be expressed by *ru* or *rruu*, prouounced as though it were a French word.

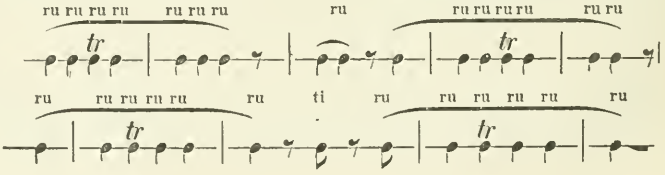

Fig. 38. Note of Nemobius vittatus.

The note is trilled forcibly and lasts a variable length of time; sometimes for several seconds, at others it is reduced to a short sharp click.

I once observed one of these insects singing to its mate. At first the song was mild and frequently broken; afterward it grew impetuous, forcible and more prolonged; then it decreased in volume and extent till it became quite soft and feeble. At this time the male began to approach the female, uttering a series of twittering chirps; the female ran

away, and the male, after a short chase, returned to his old haunt, singing with the same vigor as before, but with more frequent pauses; at last, finding all persuasion unavailing he brought his serenade to a close. The pauses of his song were almost instantly followed by a peculiar jerk of the body; it consisted of an impulsive movement backward, and then as suddenly forward, and was accompanied by a corresponding movement of the antennæ together and then apart. The female was near enough to be touched by the antennæ of the male during the first movement, and usually started in a nearly similar way as soon as touched.

The tegmina of the male are held at an angle of about twenty degrees from the body during stridulation, and perhaps at a slightly greater angle from each other. Even when most violent, the sound is produced by the friction of the inner edges of the tegmina only, and not by the whole surface.

In different years I have noted the first time in spring that I have heard this creature stridulate in the vicinity of Boston, Mass. In 1869, June 13; 1874, May 31; 1875, May 26 (and the same year at Compton, N.H., June 1); 1878, May 18 (on the summit of Blue Hill, Milton); 1879, May 31. July and August, 1867, were spent north of the White Mountains, at Jefferson, N.H., and no Nemobius was heard there before Aug. 7.

Mr. W. T. Davis says that on Staten Island there is a small form of this species, perhaps distinct, in which the stridulation is "a continuous rolling whirr, instead of the ordinary *creak, creak, creak.*"

Nemobius fasciatus Scudd. I have noticed no difference between the chirp of this species and that of the preceding, of which it is probably only a long winged form.

Œcanthus niveus Serv. The song of the common tree cricket (Fig. 39), consists of a continuously sustained, equable, creaking roll, which varies much in intensity and differs by day and by night. Dr. Harris speaks only of their song by night, remarking: "When arrived at maturity the males begin their nocturnal serenades at the approach of twilight and continue it with little or no intermission till the dawn of day. Should one of these little musicians get admission to the chamber, his incessant and loud shrilling will effectually banish sleep."

Fig. 39.

The day song of this insect is exceedingly shrill, and may be represented by the accompanying figure, though the notes vary in rapidity; when slowest they are about sixteen a second. The song is of varied length, sometimes lasting but two or three seconds, sometimes continuing for a minute or two uninterruptedly; it is a nearly uniform, equally sustained trill, but the insect often begins its note at a different pitch from the normal one—the fourth F above middle C—as if it required a little practice to attain it. When singing the tegmina are raised at fully a right angle to the body. The night song consists of *thrrr* repeated incessantly, three parts of song and one of rest in every three seconds.

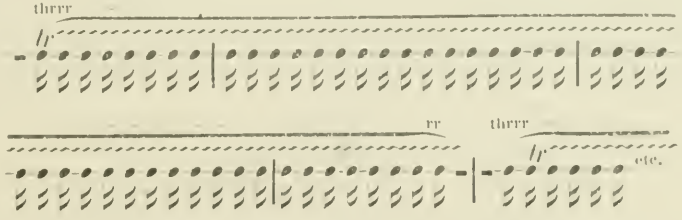

Fig. 40. Note of Œcanthus niveus by day.

McNeill remarks that the day song indicated by the musical notation given above "seems to be the song of *fasciatus*, while the night song certainly resembles that of *angustipennis* more than the song of *niveus*." These different species were not recognized by me when I made my earliest notes, represented by the notation above, so that a revision of the "score" of our Œcanthus seems desirable.

Davis describes the note of this species as a "*beat, beat,* pulsating sound." Riley says the chirp "is intermittent, resembling a shrill '*re-teat, re-teat, re-teat*' with a slight

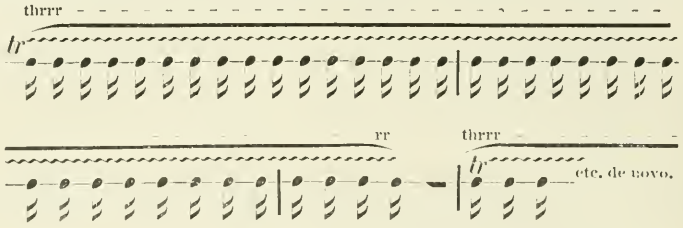

Fig. 41. Note of Œcanthus niveus by night.

pause between each." McNeill calls it "the well-known *trrr-ree, trrr-ree,* repeated without variation or pause sixty or seventy times a minute," or as he says in another place "*t-r-r—r-e-e, t-r-r—r-e-e,* repeated.... about seventy times in a minute," and adds:

"In the vicinity of Davenport, Iowa, this song is heard as early as the twenty-third of July and it continues until the persistent little songsters are killed by the heavy frosts of the late fall. This song is heard only at night and occasionally on cloudy days, but in the latter case it is only an isolated song and never the full chorus of the night song produced by many wings whose vibration in exact unison produces that characteristic 'rhythmic beat'—as Burroughs has happily phrased it. It is this effect of many united songs that has lead the same author to speak of 'purring' crickets. Thoreau calls it the 'slumbrous breathing' and the 'intenser dream' of crickets, but Hawthorne has given it a more spiritual interpretation than either Burroughs or Thoreau. He describes it as an 'audible stillness,' and declares if 'moonlight could be heard, it would sound like that.'"

Fitch writes of this insect in New York as follows: "In the southern part of our State the song of the flower cricket begins to be heard as early as the first of August, but it is a week later before it commences in the vicinity of Albany, and later still in the more northern parts of the State. Perched among the thick foliage of a grape vine or other shrubbery, some feet up from the ground, and as already stated, remaining in the same spot day after day, its song begins soon after sunset and before the duskiness of twilight arrives. It is distinctly heard at a distance of several rods, and the songster is always farther off than is supposed. Though dozens of other crickets and katydids are shrilling on every side at the same time, the peculiar note of this cricket is at once distinguished from all the rest, consisting of repetitions of a single syllable, slowly uttered, in a monotonous, melancholy tone, with a slight pause between. The children regard the cricket as no votary of the temperance cause; they understand its song to consist of the words *treat—treat—treat—treat,* which words, slowly uttered, do so closely resemble its notes that they will at once recall them to the recollection of almost every reader. And the song is thus continued without the slightest variation and without any cessation, I think, the whole night through. I, however, have sometimes heard it at the first commencement of its evening serenade uttering three syllables resembling the words *treat, treat, two; treat, treat, two*—as though the songster was supplicating a libation for his voiceless mate as well as himself—a longer pause following each third note. This prelude is probably performed in limbering or otherwise adjusting his organs, preparatory to performing the regular carol, which is struck into in a few moments."

Œcanthus fasciatus Fitch. Of this species McNeill says: "The song is a high trill continuing usually for several minutes with the intervals between the trills of very irregular length. It sings all day as well as all night, apparently in the bright sunshine as well as on cloudy days and in the dusk of evening." Davis calls the song "a long and comparatively loud, continuous whirr often lasting several minutes." My notes, which probably refer to this species, make the chirp to be at a somewhat lower pitch than that given by me for the preceding species, namely, at the third B above middle C, and the song itself is described as more rapid and vigorous. See also the notes under *Œ. niveus.*

Oecanthus latipennis Riley. Riley describes the note as follows: "The shrill cry of *latipennis* is continuous and recalls the trilling of a high-pitched dog-whistle in the distance. The key varies, however, and is sometimes much less high and more musical than at others. The commingled shrills of the species recall also the distant croaking of frogs in the spring. The broad wings are thoroughly elevated during the act, or even bent forward, and the vibration is so rapid that there appears to be no motion." McNeill says: "Its song has been described as a 'continuous, high-keyed trill, continued for fifteen minutes or more.' This is exactly the song of *fasciatus*. Since there has been so much confusion in the species of this genus, there is a chance that the song described above is mistakenly referred to *latipennis*."

Oecanthus angustipennis Fitch. McNeill says of this species, that it "has a song which resembles that of *fasciatus* in some degree, but it is very much fainter and lasts for about five seconds, with an equal interval between the trills." Davis says its song is "a faint continuous whirr, lasting only about five seconds, with an equal interval of rest." See also the notes under *Œ. niveus*.

Anaxipha exigua (Say). Perhaps the same as *A. pulicaria* (Burm.) The only one who has spoken of its song is Davis, who simply says it "has a particular silvery tone."

Orocharis saltatrix Uhl. Riley writes: "The stridulation of this cricket is a rather soft and musical piping of not quite half a second's duration, with from four to six trills, but so rapid that they are lost in the distance. The key is very high, but varies in different individuals and according to moisture and temperature. It most resembles the vibrating touch of the finger on the rim of an ordinary tumbler when three-fourths filled with water, repeated at intervals of from two to four per second, and may be very well likened to the piping of a young chick and of some tree frogs. As the species is very common in the south-west, its chirp is everywhere heard, and is so distinctive that when once studied it is never lost amid the louder racket of the katydids and other night choristers. It is also frequently heard during the day time when the weather is damp and cloudy."

Locustidae.

"These," writes Riley, "are the merry choristers that make our woods and valleys ring with their pleasant songs during the evenings of late summer and early fall. They are chiefly nocturnal in their habits, but not entirely so, for each afternoon during the courting time, and long before the sun has disappeared in the west, a few of them may be seen flying about from place to place, while others are occasionally heard in their retreats as though tuning their instruments preparatory to the grand evening concert."

Scudderia angustifolia, (Harr). This insect is more noisy by night than by day, and the songs differ considerably at these two times. The day song is given only during sunshine, the other by night and in cloudy weather. I first noticed this while watching one of these little creatures close beside me. As a cloud passed over the sun, he suddenly changed his note to one with which I was already familiar, but without knowing to what insect it belonged. At the same time all the individuals around,

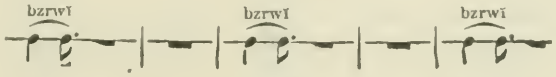

Fig. 42.—Note of Scudderia angustifolia by day.

whose similar day song I had heard, began to respond with the night cry. The cloud passed away and the original note was resumed on all sides. Judging that they preferred the night song to that of the day from their increased stridulation during the former period, I imitated the night song during sunshine, and obtained an immediate response in the same language. The experiment proved that the insects could hear as well as sing. So on another day, at 4 p.m., the sun suddenly beclouded, I heard four or

five individuals close beside me immediately change their note from the day call to the night call.

This species is exceedingly shy, and the observer must be patient who would hold converse with it. One insect which I had disturbed and beside which I was standing could not at first decide to resume his song; he was afraid of the intruder, but, enticed by a neighboring songster, gave utterance several times to a barely discernible short

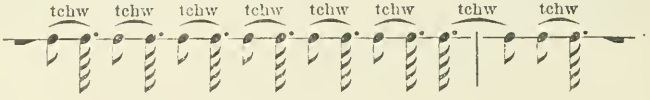

Fig. 43.—Note of Scudderia angustifolia by night.

click or *tĭ*; after five or six of these efforts his desires overcame his fears. The note by day is *tzip* or *bzrwĭ*, and lasts for a third of a second. The night song consists of a repetition, ordinarily eight times, of a note which sounds like *tchw*. It is repeated at the rate of five times in three-quarters of a second, making each note half the length of the day note.

In 1867 this species and *Orchelimum vulgare* were the first Locustarians to sing at Jefferson, N.H., where I first heard them on July 28.

This species is the *Phaneroptera curvicauda* of my previous notes on stridulation.

Scudderia curvicauda (DeGeer)—Of this species Riley writes: "The shrill of the male is by no means so loud as of the oblong-winged species [*Amblycorypha oblongifolia*], in which its sound is always drowned in the woods. It consists of a softer *zeep, zeep*, sometimes uttered singly, but generally thrice in succession. The call is occasionally responded to by a faint chirp from the females, produced by stretching out their wings as if for flight, and is as often heard in the day as at night."

McNeill says: "Its note is not generally heard until the middle of the afternoon. The note cannot be supposed to represent more than the first two syllables of the 'Katydid' or 'Katy-didn't' of its congeners. It is made but once and the rasping, jerky sound has been very well represented by Mr. Scudder as *bzrwĭ*," (but this refers properly to *S. angustifolia*, as noted above).

Scudderia furcata Brunn. McNeill says that the note of this species is indistinguishable from that of the preceding species, but is much less frequently heard.

Amblycorypha oblongifolia (DeGeer) Stal. Harris says of this insect that "when it flies it makes a whizzing noise somewhat like that of a weaver's shuttle," but the noise is very feeble and subdued. He adds: "The notes of the male, though grating, are comparatively feeble." I have not studied its note attentively, and only recorded that according to my then recollection it gave three rapid notes in succession like the true katydid, but feeble. One observed subsequently, confined in the house, emitted two notes close together every few seconds, resembling *tch-tch*. McNeill also says that "its note is a quick shuffling sound which resembles 'Katy' or 'Katy-did' very slightly."

Amblycorypha Scudderae Brun.—Bruner says: "Like *oblongifolia*, this katydid produces the peculiar *chick chick* noise which is so characteristic a sound in our groves during the months of August and September."

Fig. 44.—Note of Amblycorypha rotundifolia.

Amblycorypha rotundifolia Scudd.—This insect stridulates both by day and by night and without variation. The song consists of from two to four notes—almost

[Fig. 45.—1, represents the mature winged Katy-did, *Microcentrum retinervis*; 1b, the immature young; 1a and 2b, the eggs, deposited on twigs and leaves, overlapping each other; 2 and 2a, a small chalcid fly parasitic on the eggs, *Eupelmus mirabilis* Walsh.]

invariably three and almost never four—sounding like *chic-a-chee*, repeated rapidly so as to be almost confounded, and when three requiring just one-third of a second ; the song is repeated at will, generally once in about five seconds for an indefinite length of time.

Microcentrum laurifolium (Linn.) McNeill says the note of this grasshopper "may be represented by the syllable *tic* repeated from eight to twenty times at the rate of about four to the second."

Microcentrum retinervis (Burm). Fig. 45. Riley gives an admirable account of this insect in his Sixth Missouri Report, from which the following statement regarding its song is taken :

"The first notes from this katydid are heard about the middle of July and the species is in full song by the first of August. The wing covers are partly opened by a sudden jerk, and the notes produced by a gradual closing of the same. The song consists of a series of from twenty-five to thirty raspings, as of a stiff quill drawn across a coarse file. There are about five of these raspings or trills per second, all alike, and with equal intervals, except the last two or three, which, with the closing of the wing-covers, run into each other. The whole strongly recalls the slow turning of a child's wooden rattle, ending by a sudden jerk of the same; and this prolonged rattling, which is peculiar to the male, is universally and instantly answered by a single sharp '*chirp*' or '*tschick*' from one or more females, who produce the sound by a sudden upward jerk of the wings."

"Both sexes are for the most part silent during the day, but during the period of their greatest activity their stridulations are never for an hour remitted, from the time the great setting sun hides behind the purple curtains of the west till he begins to shed his scarlet rays in the east—the species being so numerous that the sound as it comes from the woods is one continuous rattling, not unlike the croaking of the frog, but set to a higher key. . . . I have noticed no particular difference in the day and night note, except in the greater intensity of the latter."

Fig. 46.

Davis says of the same species that it "produces two somewhat different songs, or perhaps more correctly, varies the same song in time or extent of utterance, so that unless the same individual is listened to for some time, the notes might be attributed to different species."

Cyrtophyllus concavus (Harr.) Since I began to study the character of the notes produced by different species of Orthoptera, it has been my fortune to hear that of this the true katydid (Fig. 46) but once or twice. This insect lives in tree tops, one or two only in a tree, in little colonies scattered here and there over most of the United States east of the Rocky Mountains. One such colony I encountered in the heart of the city of Springfield, Mass., and spent an evening endeavoring to reduce the notes to scale. The insects which I observed were from fifteen to twenty rods distant, perched in the tops of maple, cherry and elm trees, not far above my window. They ordinarily call "Katy," or say "She did" rather than "Katy did;" that is, they rasp their fore wings twice, more frequently than thrice ; these two notes are of equal (and extraordinary) emphasis, the latter about one-quarter longer than the former ; or, if three notes are given, the first and second are alike and a little shorter than the last ; the notes are repeated at the rate of two hundred per minute ; and while the interval between two series of notes varies to a certain degree, it is seldom greater than two and one-third seconds, or less than a second and a quarter ; usually it is between one and seven-eighths and two seconds.

The note, which sounds like *xr*, has a shocking lack of melody; the poets who have sung its praises must have heard it at the distance that lends enchantment; in close proximity the sound is excessively rasping and grating, louder and hoarser than I have heard

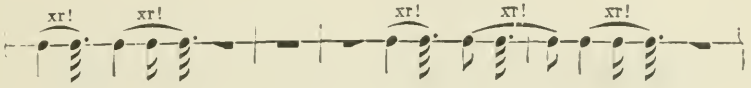

Fig. 47.—Note of Cyrtophyllus concavus.

from any other of the Locustarians in America or in Europe, and the Locustarians are the noisiest of all Orthoptera. Since these creatures are abundant wherever they occur, the noise produced by them, on an evening specially favorable to their song, is most discordant. Usually, as I have said, the notes are two in number, rapidly repeated at short intervals; perhaps nine out of ten will ordinarily give this number; but occasionally a stubborn insect persists in sounding the triple note; and as katydids appear desirous of defiantly answering their neighbors in the same measure, the proximity of a treble-voiced songster demoralizes a whole neighborhood, and a curious medley results; notes from some individuals may then be heard all the while, scarcely a moment's time intervening between their stridulations, some nearer, others at a greater distance; so that the air is filled by these noisy troubadours with an indescribably confused and grating clatter. This renders special observation of the notes of any individual all the more difficult, and it is only by great patience and careful selection that it can be accomplished, unless one places himself upon the outskirts of a colony.

Harris gave us the first account of this insects' song. He says in his classical Report: "The musical organs of the male consist of a pair of taborets. They are formed by a thin and transparent membrane stretched in a strong half-oval frame in the triangular overlapping portion of each wing cover. During the day time these insects are silent, and conceal themselves amongst the leaves of trees; but at night they quit their lurking places, and the joyous males begin the tell-tale call with which they enliven their silent mates. This proceeds from the friction of the taboret frames against each other when the wing covers are opened and shut, and consists of two or three distinct notes almost exactly resembling articulated sounds, and corresponding with the number of times the wing covers are opened and shut; and the notes are repeated at intervals of a few minutes, for hours together. The mechanism of the taborets, and the concavity of the wing covers, reverberate and increase the sound to such a degree, that it may be heard, in the stillness of the night, at the distance of a quarter of a mile. At the approach of twilight the katydid mounts to the upper branches of the tree in which he lives, and as soon as the shades of evening prevail, begins his noisy babble, while rival notes issue from the neighboring trees and the groves resound with the call of 'Katy-did, she-did' the livelong night."

McNeill writes of it in Illinois: "This is the true 'katydid,' common wherever there are trees. Its song is better known, and the insect itself less known, because of its arboreal habits, than either of the other katydids. This species moves about so little, that it is not unlikely that in many cases an individual spends its whole life upon a single tree. I have listened to the song of one katydid on a certain tree every evening for more than two months. I have noticed repeatedly that on any evening when they are singing, there are the same number of individuals as indicated by the number of songs. · · · So far as I know this is the only species of Orthoptera in which the male is not smaller and more active than the female. It is the only green-winged Locustid with which I am acquainted that does not have the wings longer than the elytra. These facts are not improbably mutually related. It may be surmised that, in the evolution of species, the katydid that developed in the greatest degree its musical apparatus had the least need of hunting up his partner when the mating season came round, and as it was so well protected by its form and color and arboreal habits as to

have little need of wings, these organs have gradually degenerated into a musical and protective apparatus. As the male was released from the necessity of hunting up the female, he would naturally lose after a time his slighter but more active body; it is easy to see how arboreal habits once acquired may react upon the entire organization."

Fig. 48. Note of Conocephalus ensiger.

Fernald says: "I cannot imagine what ingenious person first discovered that their song resembled the words "Katy did," instead of some other words; for many persons besides myself fail, upon hearing them for the first time, to recognize them by their sound."

Conocephalus ensiger Harr. This insect has but a single song and stridulates only by night or during cloudy weather; it begins its song as soon as the sky is obscured or the sun is near the horizon; it begins with a note like *brw*, then pauses an instant and immediately emits a rapid succession of sounds like *chwĭ* at the rate of about five per second, and continues them for an unlimited time. Either the rapidity of the notes is variable, becoming sometimes as frequent as twenty-three in three seconds, or else there is some deceptive character in its song. In a number of instances I have counted the notes as rapid as the highest rate given above, but on a nearer approach to verify them the rate was invariably reduced to five per second; it is doubtful whether this was due to alarm at my approach, for this is one of the least shy of our Locustarians.

McNeill says "its song is a loud rasping *zip-zip-zip* repeated indefinitely. It does not begin to sing until dark," and in another place he compares the song to the first staccato part of the song of *Orchelimum vulgare*.

Davis writes of it on Staten Island that it is the first Conocephalus to be heard, "and with *ik-ik-ik*, as if sharpening a saw, enlivens low bushes and particularly the corn patch. This insect seems to especially delight in perching near the top of a corn-stalk and there giving forth its rather impulsive song. I have often watched one crawl, with many a spiral turn, up the stem, fiddling all the while. My notes on its first heard stridulation show considerable uniformity, and the average date may be taken as July 15."

Conocephalus nebrascensis Brun. Of this species McNeill writes: "If *ensiger* may be said to sing the first part of the song of *Orchelimum vulgare*, the well-known *zip-zip-zip-ze-e-e-e*, *nebrascensis* may be said with equal truth to sing the last part of the song, that represented by the *ze-e-e-e*; but the sound is much more resonant, being really in quality much more like the song of a Cicada, but not so loud and without a swell. It begins to sing earlier in the evening than *ensiger*."

Conocephalus robustus Scudd. This grasshopper is exceedingly noisy and sings equally, and I believe similarly, by day and night. The song resembles that of the harvest fly *Cicada canicularis*. It often lasts for many minutes, and seems, at a distance, to be quite uniform; on a nearer approach, one can hear it swelling and decreasing in volume, while there is a corresponding muscular movement from the front of the abdomen backward, two and a half times a second. This is accompanied by a buzzing sound, quite audible near at hand; it resembles the humming of a bee, or the droning of a bagpipe.

McNeil says of this species that "its song is indistinguishable from that of *dissimilis*,"

but the song of the latter has never been described as far as I know*; perhaps he means that of *C. nebrascensis*, which is described by him, as above, in the same paper and which it certainly resembles, to judge from the description. He says further that *C. robustus* "lives both upon trees and in the grass; but while its song may be heard in the grass while the sun is high, I have never heard it from trees until after dark." I have never found it in Massachusetts except in grass or in corn-fields.

Davis says of it on Staten Island that it "resides for the most part mid the grass on sandy ground near the sea shore, though an occasional individual finds its way inland. Along the sea beach they stridulate in early afternoon, especially if slightly cloudy, and when approached they have a curious fashion of dropping to the ground."

Conocephalus exiliscanorus Davis. "Its stridulation," says Davis, "as well as its form, resembles that of *ensiger* more than any other native Conocephalus. We cannot count with any accuracy in *ensiger* the number of times one wing is drawn over the other as indicated by the rise and subsidence in the song, but *exiliscanorus* is such a slow singer that this estimate can be easily made, one wing being rubbed on the other about one hundred and fifteen times in a minute." And in another place: "The sound produced when stridulating is very faint, not louder than that made by *Gryllus abbreviatus*, and I was much surprised to hear such a faint song come from so large an insect. I have, in consequence of this faint song, named it the 'slightly musical" Conocephalus."

Orchelimum nigripes Scudd. McNeill says the song of this species "is difficult to distinguish with certainty from that of *vulgare*, but usually the *zip-zip* is repeated once or twice very rapidly and the *ze-e-e-e-e* does not continue so long. The earliest recorded date for it here [Illinois] is the 1st of August."

Orchelimum silvaticum McNeill. "Its stridulation," says McNeill, "is quite distinct from that of *vulgare*. It consists of the same two elements, but the *zip* is repeated many times very rapidly so as to make almost a continuous sound and the *ze-e-e-e* is comparatively short and very constant, lasting about eight seconds. The first part of the song lasts from three to five seconds."

Orchelimum volantum McNeill. McNeill says of this: "The song has a new note in it. It may be represented as follows: *zip-zip kr-ze-e-e kr-ze-e-e*, the last part of the song not lasting more than a half to three- quarters of a second and is always preceded by the sound which I represent imperfectly by *kr*."

Orchelimum vulgare Harr. With *Scudderia angustifolia* this is the earliest Locustarian to sing in northern New Hampshire; one year it sang there for the first time on July 28; the following year I heard it in the vicinity of Boston July 15. When about to sing on a hot, sunny day, the male mounts a stalk of grass to about a foot from the ground where it clings with its four front legs, allowing its hind legs to dangle on either side the stalk that they may not interfere with the movement of the tegmina. Its song is more complicated than that of our other Locustarians. Beginning with *ts* it changes almost instantly into a a trill of *zr*; at first there is a crescendo movement which reaches its volume in half a second; the trill is then sustained for a period varying from one to twenty seconds (generally from six to eight seconds), and closes abruptly with *p*. This strain is followed by a series of very short staccato notes sounding like *jip!* repeated at half second intervals; the staccato notes and the trill alternate *ad libitum*. The staccato notes may be continued almost indefinitely, but are very rarely heard more than ten times in direct succession; it ordinarily occurs three or four times before the repetition of the phrase, but not more than two or three times when the phrase is not repeated. I have known it to be entirely omitted, even before the repetition of a phrase. The interval between the last *jip!* and the recommencement of the phrase never exceeds one quarter of a second. The night song differs from that of the day in the rarer occurrence of the intermediate notes and the less rapid trill of the phrase; the pitch of both is at B flat.

*Davis says of *C. dissimilis*: "I have found this insect stridulating when its head was gone, picked off perhaps by some vagrant chick!"

Harris says of it: "During the evening, and even at other times in shady places the males make a sharp clicking noise, somewhat like that produced by snapping the point of a pen against the thumb nail, but much louder."

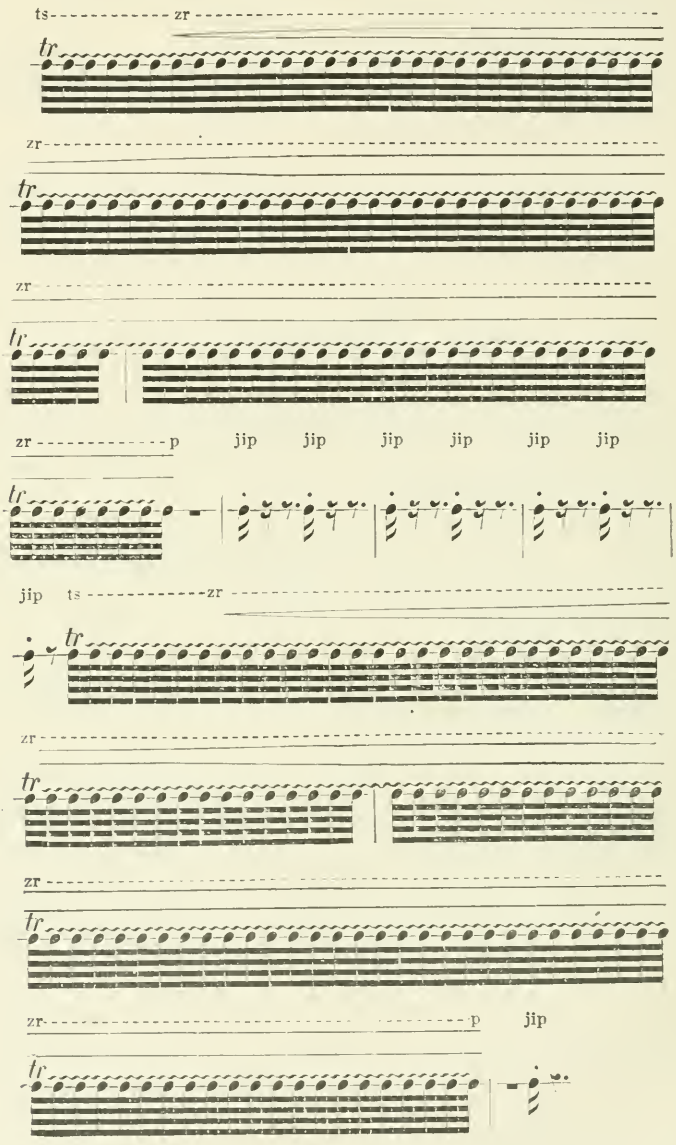

Fig. 49. Note of Orchelimum vulgare.

McNeill, writing of Illinois, says: "I have heard its note as early as the 21st of July. Its song is the familiar *zip-zip-zip-zip-ze-e-e-e*. The staccato first part is repeated about four times, usually about twice a second; the *ze-e-e-e* continues from two or three to twenty or more seconds."

Xiphidium fasciatum Serv. The note of this species resembles that of an Orchelimum, but is very faint. McNeill says of it: "Its song is a faint echo of that of *Orchelimum vulgare* with the *zip-zip* omitted. . . . Its faint little quaver is the first note of the great chorus that sounds in all the meadows from the first of August until the first of October or until cold weather."

Xiphidium nemorale Scudd. "The song," says McNeill, "is louder than that of *fasciatum;* it consists of two parts, the first a short abrupt note which is very well represented by the syllable *zip*, the second is the familiar *ze-e-e* which lasts about half a second and is made from one to five times; the *zip* is not repeated."

ACRIDIDAE.

Dictyophorus reticulatus. Many years ago I received a couple of females of this bulky species alive from the south and kept one of them for some time. In the sunshine *she* stridulated by raising her tegmina directly upward against the half opened wings, making a rough scratching sound which was repeated rather rapidly, but variably, from two to ten times.

Subsequently Dr. Shufeldt figured this insect in Science (vol. 2) and gave an interesting account of it from observations in southern Louisiana. He says: "The only sound that I ever heard this grasshopper give vent to is now indulged in by the male. It consists simply of a series of pecular hisses (this word expresses it better than anything else) and is only heard when we seize and handle one of them, or during their mating. The sound seems to be produced largely by the [fore] wings; for these members are elevated at this time, as I have shown them in my plate, where the male exhibits his beautiful hind-wings,—a relief to his otherwise sombre tints that is only to be experienced on such occasions." And later: "Whatever part of the entertainment these sable gentlemen [the males] entered into, they constantly kept up a very audible buzzing racket with their [fore] wings, which they elevated and lowered at few seconds' intervals, showing the inferior carmine pair each time they did so, with telling effect."

Melanoplus femur-rubrum. At Andover, Mass., I once observed on Oct. 5 a pair of this species, male and female, near together alternately answering each other with a slight quick movement of the hind legs on the tegmina as if in stridulation. I made no note of whether any sound was actually produced and do not now recall any.

Chloëaltis conspersa Harr. The song of this insect is of varied rapidity, according to the amount of sunshine; in the sun this insect makes from nine to twelve notes, at the rate of fifty-three in fifteen seconds; the usual number of notes is ten. In the shade the

Fig. 50.—Note of Chloealtis conspersa in the sun.

rate falls to forty-three in fifteen seconds, the number of notes remaining the same. The femur is evidently scraped gently upon the tegmina to produce the sound, for frequently, at the beginning, two or three noiseless movements are made, the leg failing

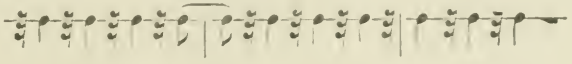

Fig. 51.—Note of Chloealtis conspersa in the shade.

to touch the tegmina. I once found three males singing to a single female, who was busily engaged laying eggs in a stick of wood, her abdomen plunged into a hole she had bored to the depth of half an inch; two of the males were near enough each other to cross antennae.

Stenobothrus curtipennis Scudd. When about to stridulate, these insects place themselves in a nearly horizontal position, with the head a little elevated; they then raise both hind legs together, the hind tibiae bent back snugly against the femora during the movement, and grate the thighs against the outer surface of the tegmina. The first one

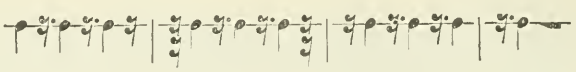

Fig. 52.—Note of Stenobothrus curtipennis.

or two movements are frequently noiseless or faint. In sunny weather the notes are produced at the rate of about six a second, are continued from one and a half to two and a half seconds, and when undisturbed are repeated with intermissions of from five to six seconds. When the sky is overcast, the movements are less rapid.

Gomphocerus sp. "The males of several species of this genus," says Riley, "produce a loud rattling or hissing sound, somewhat resembling the rattle of the large gray rattlesnake, by rubbing the inside of the thighs against the elytra." The reverse resemblance is indeed so close that I once stooped to search for the stridulator when I heard the warning of a rattlesnake, but fortunately discovered my error in time to withdraw precipitately. In an undetermined species discovered near Georgetown, Colorado, July 17, the note sounded like *tch*, repeated with exceeding rapidity, while the legs moved very quickly over a very short arc; the repetition was so rapid as to seem like one note, and it lasted from one to two and a half seconds; it was always fainter at the start and strongest just before the end.

Bootettix argentatus Brun. Bruner says this insect produces "a sharp stridulating sound," resembling "that produced by some of the Stenobothri."

Arcyptera gracilis Scudd. This is a very shy insect, but it stridulates more loudly than other Tryxalinae; its note can be heard at a distance of fifty feet. It usually makes four notes, but the number is sometimes greater. The first, a quarter of a second in

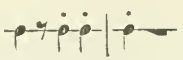

Fig. 53.—Note of Arcyptera gracilis.

length, is duller than the others, and is followed by a pause of a quarter of a second; the other notes are of the same length, but sharply sounded and follow each other rapidly.

Arphia sulphurea (Burm) Stål. This insect sometimes crackles when flying, but undoubtedly the power of doing so is under control.

Chimarocephala viridifasciata (DeGeer) Scudd. This insect usually produces a shuffling or rattling sound uniformly during the whole of its undeviating flight; but the power of making the sound is apparently under control, for it may be frightened into silence.

Encoptolophus sordidus (Burm). Precisely the same may be said of this species as of the preceding.

Tropidolophus formosus (Say) Thom. This crested locust has a short, rather feeble straight flight of about three or four rods in length, the insect rising at once to a height of about six or eight feet from the ground and gradually settling, going with the wind, the distance of its flight being partly determined by the force of the same. During this flight it makes, as if it were not at all under control, a continuous and regular very subdued clicking sound, like the very rapid but somewhat muffled ticking of a watch.

Dissosteira carolina (Linn). Townsend describes what he regards as an act of courtship in this species, as follows: "On the 14th of August last, in the afternoon. I saw one of this species fly up from the dry parched grass, and remain nearly stationary about two feet in the air for some time, by means of a rapid beating of the wings. Presently it flew back to the ground. In a few minutes another one, which had witnessed the performance at a short distance, flew quickly over and alighted by the side of the performer. They ran by each other several times, occasionally touching each other, but did not make any further manifestations, and finally the last one flew away, leaving the other motionless in the withered grass. Though it is probable that the females are attracted by these performances of the males, and that the males vie with each other in their exhibitions, still I think that the two just spoken of were both males, and were disposed to fight from a feeling of rivalry, the one that flew off having been beaten."

"On the 24th of the month I noticed the same thing over again. An individual performed three times in succession, and then another alighted on the ground by its side; they ran by each other several times, apparently clasping, probably in conflict, for I am quite sure they were both males. At last one of them flew away, and the other soon after renewed the performing. I regret to say that I did not capture specimens to ascertain the sex; but, judging from size, I do not think I have seen any but the males taking active part in the aerial exhibitions. In going through with the performance they rise at first generally about three or four feet, making a light purring or beating sound, and then, rising higher, change the motion of the wings, when a curious, sharp, see-sawing sound is produced. Some rise even higher than six feet in the last act; others rise only one or two feet. Of course some excel others in the beauty and ease with which they accomplish the feat; many do not remain in just the same place while hovering, but vary, falling or jerking about while endeavoring to keep the same point in the air. I am of the opinion that the females are sensitive to the grace with which this is performed."

I have repeatedly witnessed this ascent from a single spot, and hovering thereover so well described above, during which an interrupted crackling sound is produced, evidently at will, with particular movements of the wings, but the sound is a muffled one, though decidedly louder and sharper than that heard during its ordinary flight. I have seen it rise to a height of ten feet, particularly when in face of a bank, and it often remains a considerable time in the air nearly stationary or moving slightly up and down.

Spharagemon aequale (Say). This insect stridulates only during intervals of flight, having evidently perfect control in the matter; at nearly every turn it makes in its somewhat wayward flight, it accompanies the swoop with a crackle which lasts but a portion of a second.

Spharagemon bolli Scudd. According to McNeill this locust acts like *Dissosteira carolina* in remaining "stationary a few feet above the ground and in some manner produces a dry rustling note."

Lactista gibbosus. According to Coquillett this grasshopper "sometimes makes a rattling noise while on the wing."

Trimerotropis vinculata. Coquillett makes precisely the same remark of this as of the preceding.

Trimerotropis perplexa Brun. Bruner says "this is a noisy insect and produces a very decided clatter when upon the wing, showing that it is not distantly removed from the various members of the genus Circotettix."

Trimerotropis citrina Scudd. A species which is either this or very closely allied to it was heard by me at Garland, Colorado, making a dull continuous muffled *thrrr* during its short flight.

Trimerotropis columbia Scudd. (Ms.) This dark locust (allied to and perhaps not distinct from *T. suffusa* Scudd.) I heard in Wyoming making during its flight a clacking sound lasting from a quarter of a minute to a minute and a half, made up of a succession of sharp clacks, usually about five per second, but occasionally, and especially just before alighting, hurrying to six per second.

Circotettix verruculatus (Kirby) Sauss. This insect stridulates at will during flight, and is the noisiest of our eastern Acridians. At each turn in its flight, it accompanies the movement with a swoop-like curve, and emits a crackling sound. The sound is like

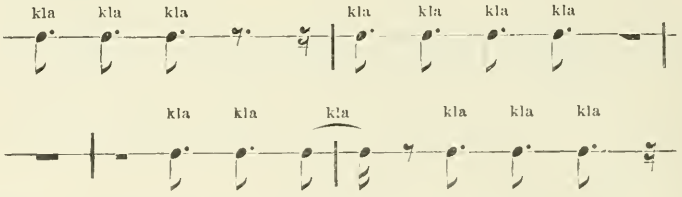

Fig. 54.—Note of Circotettix verruculatus.

kl or *kla* (the *a* having the sound of a in fat), the former at a distance, the latter nearer by; it is repeated at the rate of about five per second; just before alighting, it crackles more rapidly and frequently.

Circotettix carlingianus (Thom.). This Acridian is the noisiest of the family known to me. I have had my attention drawn to it by its obstreperous crackle more than a quarter of a mile away. In the arid parts of the west, it has a great fondness for rocky hill sides and the hot vicinity of abrupt cliffs in the full exposure to the sun where its clattering rattle is re-echoed from the walls. Its noise is like that of the preceding species vastly intensified,—a bold and defiant challenge to the collector, who will find him nimbler and warier than he cares for on a hot day.

Circotettix lapidicolus Brun. This is another of the noisy tribe, according to Bruner, who says that "during the hottest, brightest hours of noonday" it "is to be seen and heard in the air, producing its clattering music, which is anything but soothing."

Circotettix maculatus Scudd. This species is a remarkable contrast to the others of the genus. It is much the smallest form and is far from noisy. The sound it makes is similar to that of the other species but very much subdued, so as greatly to surprise me when I first captured it at Truckee, California. I could not at first believe it to be that of a Circotettix.

I have notes of the stridulation of several other western Acridians, but the species are not yet definitely determined and therefore not mentioned here.

AN INSECT DESTRUCTIVE TO SQUASH VINES.

By Samuel H. Scudder.

During the month of August the leaves of our squash-vines often present a riddled appearance, disclosing the presence of an enemy. If we examine the edges of the holes we shall find the plump, rounded larva of a beetle feeding sometimes on the upper, though generally upon the under surface of the leaf. It belongs to the family of *Coccinellidæ* or lady-bugs; and although, as a general rule, the species of this group are of positive benefit to vegetation in destroying large numbers of plant-lice which blight our fruit and shade trees, a few are herbivorous in nature, and among them the insects of which we are speaking. In the larval state, during which they inflict almost all the injuries of which they are capable, they are of a bright yellow color, covered above with long, branching black thorns, sometimes tipped with white, and arranged in six longitudinal rows. The space between the two middle rows is widened anteriorly by the more lateral insertion of the three first spines. Behind the thorns of the first segment, there is a transverse row

of short, fine, black-tipped hairs. The head, the legs, and the under side of the abdomen are covered with short fine hairs; the tips of the legs are black. When fully grown, the larvæ are about three-eighths of an inch in length, by little less than half an inch in breadth. They crawl but sluggishly, using their terminal segment as an additional leg; and live in large numbers on the squash-vines, where their voracity is attested by the rapidity with which their cast-off skins increase in size and number. These skins are white, transparent pellicles, covered with the characteristic thorns, and preserving in some measure the shape of their former inhabitants.

Toward the latter part of August, or the first of September, the larvæ are fully grown, and begin to change to their pupal state; they stop eating and crawl to a suitable place, generally upon the top of a leaf, where they can fasten themselves by their terminal segments to one of the veins; then slough their skin and appear as pupæ.

The pupa is of the same general color as the larva; the eyes are dusky and the stumpy feet crowded together on the breast. The whole body, but more especially the head, thorax and appendages, is covered with short, simple, black spines. The outer portion of the posterior edge of the first thoracic segment is bordered with black, as are also both edges of the elytra, or wing-covers, though the color fades away before reaching the tips. There are two other black bands upon the elytra, parallel to the first, and nearly uniting as they approach the tip. Between the elytra, at their base, are two little black dots. The edge of the first abdominal segment is marked by two black bands, nearly meeting in the centre, and having each end bent forward; the second, third and fourth segments have a short, black dash upon either side of the outer posterior edge; the fourth and fifth segments are darker than the others; the last segment is furnished with two long, fleshy protuberances, by which the pupa clings to the old, wrinkled, larval skin which still conceals that portion of the body lying beyond the tip of the wing-covers. All the markings which have been described, excepting the two dots between the elytra and the black dashes of the second, third and fourth abdominal segments, are frequently wanting. Out of a large number of specimens which I obtained in Connecticut, scarcely one had any of these markings, while they were invariably present in those examined at Cape Cod.

No similar differences were apparent in the perfect insects reared from the different kinds of larvæ. The pupæ are about one-third of an inch in length by one-fifth in breadth and one-eighth in height, and remain but a few days in the pupal state. When they emerge they do not seem to be possessed of a roving disposition, but may still be seen for several days on the plant where they have spent their lives, and for whose leaves they have still a relish.

Fig. 55.

In the perfect state these beetles (Fig 55.) are of the same general color as before, although the shade is darker. The elytra have two transverse rows of roundish black spots, five in number, the first row extending across the basal portion, the second traversing the central region; the middle spot in each of these rows is divided by the suture of the wings. In the centre of the remaining apical portion of each elytron is another larger, round black spot; there is a black spot upon the thorax, in the middle of the posterior border; and three other spots, smaller and sometimes fainter, are placed one upon the middle of the anterior edge and the others upon either side of the thorax. The eyes and end of the jaws are black, and the under side of the body is occasionally quite dusky. The whole body is minutely punctured and closely covered with short, fine hairs, invisible to the naked eye; its length is one-third, and its breadth one-fourth of an inch.

This beetle was first described by Thunberg under the name of *Coccinella borealis*, but is now placed in the genus *Epilachna*. Being of so large a size, and affording such evident indications of its presence, this insect can be readily destroyed by hand-picking. There can be no excuse for those who complain of its ravages if they fail to make use of this simple, rapid and effectual expedient—the more rapid and effectual the earlier it is put into practice. Where squashes are grown on a large scale for marketing purposes, it will be advisable to destroy this insect when it appears, by the use of a weak mixture of Paris green and water sprinkled upon the affected leaves.

MISCELLANEOUS NOTES.

AN EXPLODED REMEDY FOR THE PLUM CURCULIO.

We are surprised to notice still going the rounds of the press an account, often with editorial endorsement, of a curculio remedy which has long since been proved unavailing. It consists in tying corncobs soaked in molasses on the branches of the tree to be protected, and the theory is that the insect will lay its eggs in the sweetened corncobs in preference to laying them in the fruit!

Another of those utterly worthless pseudo-remedies which, we regret to say, has found space in some of our most valuable journals, is of practically the same nature, except that in place of corncobs the writer advises the use of tomato cans filled with a mixture of molasses, vinegar and water.—*Insect Life.*

SUCCESS OF VEDALIA IN EGYPT.

Rear-Admiral Blomfield, to whom we sent several consignments of Vedalia for use against Egyptian Fluted Scale, and whose letters announcing the success of the later consignments we have published from time to time, has written us that the beneficial Australian insect has recently made its appearance in a garden in Ramleh, a distance of more than three miles from the original trees upon which the first specimens were reported. The experiment is evidently turning out very successfully.—*Insect Life.*

ON THE CARBON BISULPHIDE REMEDY AGAINST STORED GRAIN PESTS.

Allow me to add an important item in the method of keeping weevils and rats out of a corn crib, by the use of the vapor of bisulphuret, or bisulphide of carbon.

The improvement I expect to make this year is to place on the floor of the bin an oblong box made out of two 12-inch boards, the upper part coming to a sharp point. The box is to be long enough to run two-thirds through the bin, boxed up at the inner end to give it support. There is to be for a few feet from the inner upper edge an opening cut out about half an inch wide to give free vent for the vapor to penetrate the corn. The necessity of this arrangement is, after the bisulphide has disappeared by evaporation, to replace it with a fresh supply. This is to be done in particular to keep out rats the year round. One good fumigation of the vapor is sufficient to kill the weevils, but it will take somewhat a continuation of the evaporation to keep out rats.

As you are aware, the bisulphide of carbon is a highly volatile fluid, and the contents in an open bottle will readily disappear by evaporation. To replenish the fluid by the use of the long box, say every few months, would be all that is required, and instead of using several bottles at once imbedded in the corn, I would use but a single bottle at a time. By this method the experiment would be brought to a successful issue, and the expense of protecting a bin of corn is not materially increased, but rather diminished.

To place a bottle of bisulphide in the box described, take a wooden shovel with a little box attached to the end of it to snugly hold the bottle. Let the handle be about an arm's length shorter than the box. Before introducing the fluid I would close up the bottle with a few layers of muslin, and by the aid of the shovel place it inside of the box nearly at the inner end, leaving the shovel with the bottle inside; then close up the entrance at the door with old bags or something of the kind.

I learn that some have apprehensions as to the personal safety in using the bisulphide of carbon, and the effect it may have on the corn. As I have ascertained by experiments, the line of ignition is close to the body of the fluid itself, therefore there is no danger in taking a light into the bin. As to the effect on the corn, everything is in its favor. My last year's corn treated with the carbon proved that hardly a kernel failed to germinate, and the shucks were eaten by the stock, I thought, with unusual relish. The

cause of this is obvious. The corn grew rapidly and with vigor, and was considered the best in the neighborhood. Whether the bisulphide had anything to do with it, I will not say; but I am somewhat inclined to think it had. We know that solutions of some of the metallic salts have a tendency to stimulate favorably the growth of seed that is immersed in it.

I only know of one great danger in handling the bisulphide, in which I nearly lost my own life. The experimenter may pour it into the opening of an ants' nest to destroy them, and safely ignite it at the hole with a match. After the explosion it leaves for a while an invisible flame at the opening. If he is tempted to recharge the opening from a full bottle of the fluid in his hands it will explode and send him without a moment's notice into the other world!

It is supposed that nearly 50 per cent. of the corn in Texas is annually destroyed by weevils and rats. The destruction is so great that nearly all the corn used in this part of the State comes from Kansas.—G. P. Hachenberg, M.D., Texas, in *Insect Life*.

WIREWORM REMEDIES.

In answer to a question in relation to destroying wireworms, the larvæ of click beetles, of which there are a large number of species, elaborate experiments by Prof. Comstock, of Cornell University, N.Y., shows that the beetles can be easily attracted to baits of clover which have been poisoned by wetting with one of the arsenicals—Paris green water for instance. These baits consist of small bunches of the freshly cut plant, about one-fourth pound in weight, distributed throughout the field and protected and kept moist by being covered with boards.

As an indication of the efficiency of this method it is stated that a series of twelve traps yielded in three days 482 beetles, or an average of more than forty per trap. These traps should be put out during the early summer, and the beetles killed in a majority of cases will not have deposited their eggs and the consequent depredations of their larvæ, the wireworms, will be greatly diminished. It frequently happens that the infested areas are rather limited in extent, and do not cover the entire field, and where this is the case the labor of distributing bait will be greatly lessened. The bait should be renewed once or twice per week during the early part of the summer. In place of the clover, cornmeal dough and sliced potatoes are used, but clover has proved itself the most valuable. Where a field has become extensively infested by the worms there is little which can be done so far as any actual experiment has shown.

The wireworm is the larvæ of a beetle, commonly known as the click-beetle. This is a small brown or black beetle, and is sometimes recognized from the fact that when placed in any unnatural position it regains its feet by throwing itself into the air by an action of the body which produces a short, sharp, clicking sound. There are, of course, many species of click-beetles, the number being co-extensive with the different varieties of wire worms.—*Prairie Farmer*.

ELECTRICITY *versus* CATERPILLARS.

Edison originated electrocution on a practical scale when he waged successful war on cockroaches. We are greater believers in the humanity of electricity as a destroying agent when thus applied than when used punitively for man. We now hear that Edison's original device has been greatly improved upon, and applied to prevent caterpillars from climbing up trees. Alternate wires of copper and zinc are run around the trunk of the tree, at the distance of about half an inch apart. The casual caterpillar begins to mount the trunk of the tree, and unlimbers himself with the confidence and vigor born of an impending feast. Presently he reaches the copper wire, pokes his nose over it, and lets another kink out of his backbone. Half an inch further up his front feet strike the zinc, the circuit is completed, and the unfortunate larva is a martyr to science.—*Science Gossip*.

INSECTICIDES AND FUNGICIDES.

Many experiments have been conducted with a view to combine substances which are known to have both insecticide and fungicide qualities. While the results have been variable, it would appear on the whole that the combination of an insecticide does not add to the efficiency of a fungicide, but often detracts from it; but the reverse of this does not hold true, as experiments have proved that while Bordeaux mixture combined with arsenites does not act well as a fungicide, it is decidedly beneficial as an insecticide, as the arsenites can be used so much stronger. Professor Maynard found that one pound of Paris green in 500 gallons of sulphate of copper solution proved very injurious to his trees, but that one pound of Paris green in 200 gallons of Bordeau mixture secured a very large crop of plums while other trees not treated lost their fruit from curculio. He also decided that black knot was less upon the trees sprayed with this latter mixture.—*Dr. C. V. Riley; Address before the Massachusetts Horticultural Society.*

ARSENITES IN THE ORCHARD.

Recent experiments made at a few of our experiment stations, which have sufficiently competent Entomologists, have thrown much light on the comparative value of different arsenical mixtures as insecticides, and as to the relative injury they do the foliage of different trees. The testimony of some experimenters would indicate that the peach is more susceptible to the influence of London purple than to Paris green, and that there is less danger of injury when the leaves are young than when they are old. The cause of injury by London purple is doubtless due to excess of soluble arsenic. Professor Bailey found that heavy spraying with one pound of Paris green to three hundred gallons of water did not injure the foliage. But perhaps the most valuable results obtained are those given by Professor Gillette, who states that London purple used with Bordeaux mixture in the proportion of one pound to fifty gallons was entirely harmless to the peach and plum; that the oldest leaves are most liable to injury; that dews and probably direct sunlight increase injuries done by arsenites to foliage; that leaves kept perfectly dry can hardly be injured by them; that leaves suffering from fungous disease are more susceptible than healthy ones; that freshly mixed and applied London purple is most injurious, while freshly mixed and applied white arsenic is least injurious to foliage, but the longer the mixed white arsenic stands the greater the danger of injury; that lime added to London purple or Paris green in water lessens the injury they will effect on foliage, while lime added to white arsenic in solution increases the liability to injure the same unless the poison is wholly dissolved, when the opposite effect is produced; that London purple can be applied without injury, eight or even ten times as strong, if combined with common Bordeaux mixture instead of water; that arsenites cannot, by ordinary methods, be mixed in a kerosene emulsion; that they mix readily in rosin compounds and seem no more injurious than when applied in water; that when put into strong, soapy water they do much more harm than in clear water; that they mix readily in carbonate of copper solution and are as harmless as when in clear water; that London purple in sulphate of copper solution is vastly more harmful than when in water only. —*Dr. C. V. Riley; ibid.*

THE FLUTED SCALE.

No more striking event has happened during the past two years than the extermination of this insect, most destructive to the orange growing interests in Southern California. It is difficult for one unfamiliar with the facts to realize that this scale, which two and a half years ago hung like a blight and plague over leaf, branch and trunk of all citrus, and many other kinds of fruit trees and shrubs of Southern California, has been so effectually swept away by the little Australian lady bird, Vedalia cardinalis, which was imported for this purpose. In the language of Assistant Secretary Willits, "It seems almost like an entomological romance." The history of this scale Icerya purchasi, has made everything pertaining to the genus interesting and during the past year four other

species have come to my knowledge. The Icerya rosæ from Key West and limited in its range; Icerya Ægyptiacum, from Alexandria, Egypt; Icerya Montserratensis occurs on the island of Montserrat, W.I., and Icerya Palmeri, found by Dr. Edward Palmer, in 1887, upon a grape vine in the province of Sonora, New Mexico, but only on the Muscat of Alexandria variety. The practical lesson to be learned is, that our fruit growers of Florida, Texas and California should take every care to quarantine all plants from infected foreign points until examination shows them free from such pests.—*Dr. C. V. Riley*; *ibid.*

USEFULNESS OF TOADS.

At Greeley, Colorado, two species of leaf-roller moths were very abundant and destructive in their attacks upon fruit and other trees. Mr. Gillette in closing his observations upon them says: "While speaking of the remedies for leaf-rollers, I should do wrong not to mention the valuable services of the toads. One of the most interesting sights that came under my observation in Greeley last summer was the large number of well-fed toads that hopped lazily about on the walks under the trees from morning to night, looking for leaf-roller caterpillars that were dropping on every side. The rollers were usually snapped in by the toads even before they could reach the ground. As many as fifty of these toads were counted under a single tree, and it was not uncommon for people to take the middle of the street to avoid the toads along the walk. Toads seldom do harm and feed almost entirely upon insects, and should be carefully protected as they are decidedly beneficial."—*Colorado Bulletin No. 19.*

BOOK NOTICES.

A Text Book of Agricultural Entomology: Being a guide to the Methods of Insect Life and means of prevention of Insect Ravage. For the use of Agriculturists and Agricultural Students. By Eleanor A. Ormerod. Second Edition—London: Simpkin, Marshall & Co., 1892. One vol., pp. 238; 164 figures; Crown 8vo.

About nine years ago Miss Ormerod delivered a series of ten Lectures for the Institute of Agriculture in England, and afterwards published them in book-form as "A Guide to Methods of Insect Life." This proved to be an excellent and highly useful work, but was not in much demand until recently, when it was found to contain the information that was required in this department of agricultural instruction, and accordingly the necessity of a second edition speedily arose. The result is the work before us, in which the authoress has expanded her original lectures and produced an admirable text-book for the use of students and others interested in Economic Entomology.

The first two chapters of the book give an account of the structure and transformations of insects, describing their varied conditions of life in the larval, pupal and perfect states, and a brief explanation of the various orders and their characteristics. Any intelligent reader will get a very fair elementary idea of Entomology by studying these two chapters, and they are written so clearly and in such simple language, as free as possible from technicalities, the few employed being always explained—that they can be fully grasped by any one of the most ordinary attainments.

The next two chapters deal with Flies (*Diptera*) and Fleas (*Aphaniptera*). The principal species that cause injury to the farmers by their attacks upon his crops and livestock are treated in detail, and the best modes of opposing their ravages are clearly and succinctly given. In describing the Wheat Midge (*Cecidomyia tritici*) the authoress says: "*In Canada, or where the weather can be reckoned on* and the date of appearance of the Wheat Midge can be reckoned on also, injury from attack is avoided by sowing so that the wheat shall flower *before* or *after* this special time. In one case the young grain is too firm for the Red Maggot to hurt it; in the other, the flower and germ is not far enough advanced for there to be anything to attack until the Wheat Midge has passed

away ; consequently the corn is safe. We sometimes benefit in this way here [in England] by accidental circumstances, but we cannot depend on being able to arrange it as in less changeable climates."

"Our best method of prevention is to destroy the Red Maggot (or the Chrysalis, if it has turned to it) in its winter shelter. Deep plowing, such as will turn infested stubble thoroughly down will act well, for once deeply buried the Gnat-fly either will not develop or *cannot* come up again. It is not enough considered in these matters that we may by our own common knowledge often guide ourselves. If a weak small grub (so small that we can scarcely see it) has a weight of earth put on it, somewhere about as much as if at least thirty or forty yards deep of earth were placed on one of ourselves, it is very unlikely that, where it is not specially supplied with powers for piercing the ground, it will come up again as a grub ; and the Gnat-Midge, if it does develop, certainly cannot make its way through."

"This is one of the points that show us how to keep insects in check ; we need often merely to consider just what is before our eyes and act on it. Once down, and left down (for, of course, if we bring the grubs up again by a second *equally deep plowing* we lose our labor), we have, in all probability, buried the coming attack safely away."

But while giving such information as this on methods of prevention of insect attacks the authoress distinctly disclaims any intention of making the book a Manual of Economic Entomology, and expressly states that the details of treatment are given in order to impart the principles on which the treatment is based. "There are certain habits," she says ; "certain times when the creature is inactive ; certain treatment which will get rid of it equally in the egg, or the chrysalis state, and so on. Therefore, though I hope the short histories may be serviceable for field use further on, yet now these points are entered on chiefly as showing general methods of treatment that we may apply to all similar kinds of attack."

From the account of the Ox Warble-fly (*Hypoderma bovis*) we extract the following : "The yearly loss from this attack is enormous. Firstly, there is the loss on milk, and on many other points of damage consequent on the wild gallop of the cattle when terrified by the fly. Secondly, there is the loss on condition of the infested animal. Every warbled hide is a sign of so much out of the farmer's pocket, for the food he spent in feeding grubs in his cattle's backs, which should have gone to form meat and milk, instead of being wasted in foul maggot-sores. Thirdly, there is the loss falling mainly on the butchers, consequent on damage to surface of carcase known as 'licked beef' or 'butcher's jelly.' Fourthly, there is a great loss on the injured hides." In proof of this she quotes some returns from dealers in hides ; one from Newcastle-on-Tyne states that "in a period of twelve months, 102,877 hides passed through the market ; of these 60,000 were warbled. Loss estimated at £15,000."

"The above loss, in all its details, is wholly unnecessary. By the use of simple measures we have now found, from the experience of our leading farmers, cattle-owners and veterinary surgeons, during about nine yeas, that the attack may to all practical purposes be stamped ont."

"Squeezing out the maggots is a sure method of getting rid of them ; but they may be destroyed easily and without risk by dressing the warble with any thick greasy matter that will choke the breathing pores of the maggot, or poison it by running down into the cell in which it lies and feeds. . . . To prevent fly-attack in summer, train-oil rubbed along the spine, and a little on the loins and ribs, has been fonnd useful ; so has the following mixture : 4 oz. flowers of sulphur, 1 gill spirits of tar, 1 quart train oil ; to be mixed well together and applied once a-week along each side of the spine of the animal. With both the above applications it has been observed that the cattle so dressed were allowed to graze in peace, without being started off at the tearing gallop so ruinous to flesh, milk, and, in the case of cows in calf, to produce." (The above would, no doubt, prove valuable as deterrents to one new pest, the Horn-fly).

The fifth and sixth chapters are devoted to Beetles (*Coleoptera*), and contain a clear outline of their classification with short descriptions and excellent figures of a large number of representative injurious species, and the best modes of dealing with them.

The next chapter treats of Butterflies and Moths (*Lepidoptera*). After giving an account of many different species with their varied modes of attack and the special measures to be adopted in each case, the authoress goes on to say: "But for the most part these and various other means of prevention or remedy have to be applied, not as broad measures of treatment, but as *special* measures for each *special* attack, involving necessarily *special* outlay. For these reasons the pressing need has long been felt of having some kind of application at hand which is cheap and sure in its action, and which can be brought to bear at once, when required, on any or all sorts of Moth-caterpillars together (whatever their various natures or previous histories may have been), and will kill the whole collection of ravaging hordes at once, without damaging the leafage; the experiments have been made, which have resulted, in some of our fruit-growing districts, in the successful introduction of spraying caterpillar infested leafage with Paris-green, which has long been found serviceable in the United States and Canada." To Miss Ormerod, indeed, it is due that the British fruit-growers have been introduced to the use of arsenites, that their prejudices have been largely overcome, and that the successful experiments have been carried out. For several years she has been urging in her Reports the adoption of spraying with these poisons and using kerosene emulsions, and now the good results of acting upon her advice have become apparent in many quarters.

Chapter eight treats of Saw-flies, Ichneumons, Wasps and other members of the order *Hymenoptera*. Especial attention is paid to the beneficial species of Ichneumons that are parasitic upon various insects of all kinds. The next chapter deals with the Bug tribe (*Hemiptera*), including the Aphides and Scale-insects (*Homoptera*) and the Plant-bugs (*Heteroptera*); and the last chapter with Slugs, Eel-worms, Millepedes and Red-spider. In this concluding chapter there is given much sensible advice for ordinary people as to the way in which they should observe insects and deal with their attacks. We may make one or two quotations: "With a slight knowledge of the habits of insect life, added to his own of the agricultural measures that could be used to destroy the pest, or at least lessen the effect of its ravages, each grower would be fairly able to cope with attacks as they occurred; whereas if he depends only on advice, besides the damage from delay, he is very likely to get suggestions not suited to the particular circumstances. The farmer may not know the history of the insect; but on the other hand, the Entomologist very seldom knows the practical workings of growing a crop, which it is necessary to know before advising measures which can be depended on to answer at a paying rate."

"In many cases the different items of treatment which go to make up good farming will of themselves keep down a great deal of insect attack. By good cultivation of the soil, and proper as well as liberal manuring, by rotation of crops, and clearing fields and borders of useless trash and weeds, we turn out a great quantity of the pests which are harboring in the ground, and also ensure a good, healthy growth, such as will support the crop under moderate attack; and by the rotation of crop and absence of weeds we are often able to present starvation to our grubs, as many of them will only (or, perhaps, we should say, *can only*) live on special food. These are the broad principles which are sure to be of use. We shall not be free from insects any more than we shall be free from weeds; and we need a great deal more solid field information about the habits of crop insects (and experiences of paying means of prevention) before we can think we have them thoroughly in hand. Nevertheless, the last few years have added enormously to our information, and have shown us how at least we may greatly diminish the amount of injury our crops suffer."

This stock of information, as far as Great Britain is concerned, has been almost entirely brought together by the unselfish labors and painstaking enthusiasm of Miss Ormerod herself. While aided by a large number of practical observers scattered over the country, she stands alone among hundreds of collectors of insects, and many eminent students of entomology, in devoting her talents, her knowledge, her time and her means to the most useful and patriotic pursuit of the study of the science in its economic aspect. C. J. S. B.

Special Report of the State Board of Agriculture on the Extermination of the *Ocneria Dispar*, or Gypsy Moth. Boston: Wright & Potter Printing Co., 1892.

This official pamphlet gives an interesting account of the very remarkable and unique efforts that are being made in the State of Massachusetts to exterminate the Gypsy Moth. This insect, imported from Europe, was accidentally permitted to establish itself about twenty years ago, and has now multiplied to such an extent as to be a serious pest throughout a considerable area of the State. In March, 1890, the Legislature passed an Act appointing three Commissioners to "provide and carry into execution all possible and reasonable measures to prevent the spreading and secure the extermination of the *Ocneria Dispar* or Gypsy Moth in the Commonwealth;" the sum of $25,000 was also appropriated for the work. Last year the Commission was merged into the State Board of Agriculture, and a further grant of $50,000 was made to it. The Report before us gives the details of the work carried out and the modes adopted for waging war against the insect. They were very largely under the direction of Professor Fernald, as Entomological adviser, and Mr. Forbush, as Superintendent of Field Work. The number of men employed varied with the season, and at one time, in June last, was as many as 242. The work began with the destruction of the eggs; when these proceeded to hatch out, spraying the caterpillars with insecticides was adopted, and towards the close of the season the eggs were again made the objects of attack. An enormous number of the insects were destroyed, and a perceptible diminution in the amount of injury was observed in some places. We shall look forward with great interest to the result of the present year's operations, and hope in time to be able to record a great victory in this field of practical Entomology. C. J. S. B.

Insects Injurious to Forest and Shade Trees, by Alpheus S. Packard, M.D., Ph.D. (Fifth Report of the Entomological Commission of the United States). 1 vol., 8vo., pp. 957. Washington: Government Printing Office, 1890.

About ten years ago (in 1881) what was then called the Entomological Commission, consisting of Messrs. Riley, Packard and Thomas—three very eminent men—issued a work by Dr. Packard on "Insects Injurious to Forest and Shade Trees" (Bulletin No. 7), a goodly volume of 275 pages, well illustrated and replete with valuable information. Recently a revised and much enlarged edition of this publication has been issued by the Department of Agriculture at Washington, bringing the original work more nearly down to date, and furnishing, as far as possible, a complete manual on the subject. The new volume is more than three times the size of the former edition, consisting of no less than 950 pages, illustrated by over 400 wood cuts and forty plates, twelve of which are colored. Some idea of the extent of the work, as well as of the importance of the subject, may be found from the fact that descriptions are given of over three hundred species of insects that affect the oak, and the names of nearly one hundred and fifty more are mentioned; sixty-one are described as attacking the elm, and thirty more mentioned; one hundred and fifty-one described that affect the pine, and a list of twenty more given; and so on for a large number of other trees. Economic entomologists for the most part devote their attention to the insects that attack fruit trees, crops and vegetables, as these most directly affect the public; but surely no more important matter can be studied than the preservation of our forests, which are annually being depleted for the purposes of commerce, as well as by fire and insects. It is high time that more attention was paid to this matter, and that people generally should be aroused to the dangers that will surely result if we allow our country to be stripped of its woods and forests. In some countries of Europe, notably in Germany, a very rigid oversight of the forests is maintained by the government, and no wanton or careless destruction is permitted. In connection with this, they encourage scientific men to devote their studies to the insect enemies of trees, and as a result some magnificent books have been published, chief among these are the grand work of Ratzeburg and the perhaps less widely known publications of Kaltenbach. Alongside of these Dr. Packard's book will assuredly take its place, as his work is very carefully and completely done. The life-history of each insect described is as far as possible fully given; the best published descriptions of each stage are quoted and references given wherever the author

has not made personal observations himself, or wherever he thinks that some one else's record is better or fuller than his own. Thus the work is made complete to date, and succeeding observers will know what investigations have been made, and what remains to be done in this vast field of entomological research. The colored plates are beautifully and accurately done, and the wood cuts and other illustrations give careful details or full representations of a large number of the insects referred to in the text. Such a publication ought to encourage our own Government to follow the noble example set them in this respect at Washington. C. J. S. B.

A Series of Thirty Colored Diagrams of Insects Injurious to Farm Crops. Drawn from nature by Miss Georgiana E. Ormerod. W. & A. K. Johnston, London, England, 1891.

These diagrams are beautifully and accurately executed, and will be found most useful by anyone who is called upon to lecture to classes in entomology, or give addresses to farmers' institutes. They are sufficiently large, being thirty inches long and twenty-two wide, to be seen at some distance in a hall or class-room, and will serve to illustrate descriptions of an economic character. Though intended for England, nearly all of them are equally applicable to this country. They are divided into five sets of six each, which deal with the following objects:—(1) Common Insect Attacks: Ox Warble Fly, Horse Bot-fly, Large White Butterfly, Cockchafer, Turnip Flea-beetle, Onion Fly; (2) Insects affecting Various Kinds of Crops: Surface Caterpillars, Daddy Long-legs, Eel-worms, Plant Bugs, Hessian Fly, Wire-worm; (3) Insects Affecting Particular Crops: Mangold Fly, Hop Aphis, Bean Beetle, Corn Thrips, Gout Fly, Corn Saw-Fly; (4) Insects affecting Fruit Crops: Winter Moth; American Blight (Aphis), Gooseberry and Currant Saw-fly, Apple Blossom Weevil, Codlin Moth, Magpie Moth; (5) Insects Affecting Trees: Pine Beetle, Pine Weevil, Pine Saw-fly, Goat Moth, Spruce Gall Aphis, Leopard Moth. The diagrams are sold singly at one shilling and sixpence each, or in sets. On each is shown the natural size of the insect as well as the greatly enlarged picture, a very necessary matter, as otherwise most erroneous impressions are formed by the ignorant of the real dimensions of the creature referred to. There is also printed on each a general description, by Miss Eleanor A. Ormerod, of the life history of the insect depicted, and of the best remedies to be employed against it.

C. J. S. B.

A Manual of North American Butterflies, by Charles J. Maynard: 8vo., pp. 226. Boston, DeWolfe, Fiske & Co., 1891.

We are always glad to welcome the publication of a new book which is likely to render more easy, and consequently to popularize, the study of entomology. The author of the work before us has, no doubt, had this object in view when preparing this manual, in which are brought together "for the first time, descriptions of all the species of butterflies which occur in North America, North of Mexico." He has evidently taken a great deal of pains in the execution of his task, and expended much labor upon the descriptions of over six hundred and thirty species of butterflies, and in the preparation of the illustrations, for "not only is a colored plate given of one species of nearly all the genera, but wood cuts are given of some portion of about two hundred and fifty species, illustrating some peculiar character by which the insect may be known; both plates and wood cuts have, with a single exception, been drawn and engraved by the author himself." The wood cuts, giving a wing or a portion of a wing, of a number of closely allied species, will be found very useful helps by any one employing the book for the identification of his specimens, and are much superior to the coloured plates. Anyone with a large stock of specimens on hand, and with a few named in different genera to start with, will find this book a very useful and handy manual for the naming of his material, but this, we fear, is the extent of its value. The author has adopted the comparative method in his descriptions, which involves a constant reference to some other species, which the beginner in the study may chance not to have, and be woefully puzzled in consequence. There are no synopses, or comparative tables, of either genera or species given, but the author selects a species as his "type" and compares the other members of the genus with it. If the student possesses a specimen of this typical

species his way will be fairly easy, but without it the investigation will be sadly difficult, if not hopeless. Another very serious defect in the book is the entire absence of all reference to the preparatory stages of the insects, and consequently to their food-plants, habits, dates of appearance, etc. We trust that the author may be enabled to issue a second edition of the work, and make it a thorough and complete "manual" by remedying the defects we have referred to. That this may be done in a concise form and in a most useful manner is admirably proved by Stainton's "Manual of British Moths and Butterflies," which we would commend to our author as a model for imitation when he enters upon the preparation of his next edition. C. J. S. B.

OBITUARY.

The Abbé Provancher.

It is our painful duty to record the death, in his 72nd year, of the Abbé Léon Provancher, who for many years, despite great discouragements and disadvantages, laboured zealously and assiduously to develop and disseminate a knowledge of the natural history of Canada, and especially of his native province. He was born in 1820, at Beçancour, Que., and for some years was Curé of Portneuf, and one of his earlier entomological writings was a list of the Coleoptera of that district. Compelled by enfeebled health to relinquish the regular and more active duties of the ministry, he removed to Cap Rouge, near Quebec, and devoted his remaining time and strength almost entirely to the study of the natural sciences. In 1869 he commenced the publication of the *Naturaliste Canadien*, and, notwithstanding many discouragements, completed in 1891 the 20th volume, when its issue had reluctantly to be abandoned through the Quebec Government refusing to continue the scanty annual grant it had received. As early as 1858 Provancher published an elementary treatise on botany, and in 1862 his Flore du Canada. Subsequently he devoted his attention specially to entomology, and in 1874 commenced his Faune Entomologique du Canada—Vol. I., treating of the Coleoptera, was completed in 1877, with three supplements in 1877, 1878 and 1879. Vol. II. was commenced in 1877 and completed in 1883, and contains the Orthoptera, Neuroptera, and Hymenoptera. In 1885-1889 he published Additions aux Hymenoptères, and issued Vol. III. upon the Hemiptera, which was completed in 1890. He was also an enthusiastic conchologist, and his last publication was a treatise upon the univalve molluscs of the Province of Quebec. His writings include the account of a pilgrimage to Jerusalem, an excursion to the West Indies, treatises on agriculture, etc. He will be best known, however, by his entomological work, and as he described a large number of new species and genera, particularly of the Hymenoptera and Hemiptera, it is sincerely to be hoped that his collections may be placed where the types will be carefully preserved and be accessible to students of entomology. There is a disposition on the part of some American students to ignore the work of Provancher, and to accuse him of want of care, etc., in the determination of genera and species. The enormous disadvantages under which he labored must, however, be considered, for he was remote and isolated from libraries, collections and fellow-workers, and in his writings he often laments the fact that so few could be found to take any active interest in his pursuits, or to assist him in his labors. His entomological work would have been more exact and complete had not the publication of the *Naturaliste* greatly interrupted his investigations, and forced him to spend much of his time in other directions. His labors had the result of starting natural history collections in some of the colleges in the Province of Quebec, but our French citizens do not appear to have any special leaning to the sciences he loved, and he has left behind him no entomological student of any distinction. Above all, Provancher was an ardent Canadian, strongly imbued with love of his race, language and religion, and often in his writings he impresses these sentiments upon his readers. A few years ago he was elected a Fellow of the Royal Society of Canada, and he was also a member, active or honorary, of many other societies. W. H. H.

Yours truly
L. Woolverton

DESBARATS & CO., ENGRAVERS AND PRINTERS.

TWENTY-FOURTH ANNUAL REPORT

OF THE

FRUIT GROWERS' ASSOCIATION

OF ONTARIO

1892.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

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1893.

INDEX.

	Page.
Affiliated Societies	133
Agricultural College Advisory Board	71
Agricultural Divisions	4
Alkaline Wash	45
Annual Meeting	5
Ansjutin's Apricots	100
Anthracnose of Raspberry	88
Antonovka	94, 95
Apple Bucculatrix	113
Apple Growing	26
Apple Inspection	65
Apple Inspector, Duties of	66
Apple Scab	32, 82
Apples, Best for Profit	40
Apples for Stock	68
Apples, Yield in Ontario	63
Apricots, Russian	100, 106
Arnold	121
Babuskino, or Grandmother Apple	102
Baldwin Apple	41
Barberry	132
Beall's, Dr., Address	90
Bee Keeping and Fruit Growing	34
Bessemianka Pear	97
Beurre Romain	108
Black Knot	37, 38
Blenheim Apple	41
Bohemian Queen Cherry	101
Bordeaux Mixture	43
Botan	18
Botanical Laboratory	90
Brant County Fruit Growers' Association	133
Bubach Strawberry	50
Burlington Horticultural Society	133
By-Laws	3
Canker Worms	112
Carbolic Acid Emulsion	45
Catalogue of Fruits	137
Cheney Plum	14
Cherry Rot	86
Cherry, Russian	101
Chickasaw Plums	15
Clay Farms	28
Columbian Exhibition	9
Columbia Raspberry	118
Concord	70
Constitution	3
Cranberry Pippen	42
Curculio Proof	18
Dempsey, P.C	10, 121
Dempsey Pear	10
DeSoto Plum	13, 14
Diseases of Fruit Trees, Act on	24, 37
District Fruit Lists	142
Duchess Apple	40
Enemies of Horticulture	42
Enhance Strawberry	50
Experiment Stations for Fruit	47, 73, 78
Eye Spotted Bud Moth	113
Fall Web Worm	113
Fertilizers for the Garden and Orchard	125
Flemish Beauty	110
Forest Garden	14
Fruit Catalogue	137
Fruit Exhibit	73
Fruit Exhibit at St. Petersburg	105
Fruit Experiment Stations	73
Fruit Growing on Clay	28
Fruit in Lambton County	127
Fruit Statistics	68
Fungi Affecting Fruits	79
Fungicides	21, 22, 43
Gandy Strawberry	50
Garden, My	122
Gillespie	50
Golden Russet	42
Gooseberries	61
Gooseberry Mildew	85
Grand Duchess of Olga Apple	103
Grapes	69
Grapes, Committee on	74
Grapes, Most Productive	69
Grapes recommended	76
Gravenstein	40
Grimes Golden	41
Hamburg Pear	103
Hansell Raspberry	119
Hardy Russian Pears	108
Haverland	50
Hawkeye Plum	12, 14
Hawthorn	132
Hedges	131
Heebner Raspberry	119
Hellebore	45
Herstine Raspberry	119
History of Association	6
Honey Locust	132
Honey, Price of	36
Ida	14
Imported Currant Sawfly	113

	Page.
Inspection of Fruit	64
Kandyl Synap	99
Kara Synap	98
Kerosene Emulsion	45, 59
Koslov Morello	95
Lambton County, Fruit in	127
Lettuce growing under Glass	128
Liegal's Pear	111
Lithunian Pippin	111
Local Fruit Growers	4, 75
Long Pear	108
Mercuric Chloride as an Insecticide	116
Mildew of the Grape	84
Miner Plum	16
Morello Cherry	95
My Garden	122
Native Plums	12
Native Plums, Advantages of	17
New Fruits	77, 119
Newman Plum	15
New Raspberries	118
Niagara Grape	69
Nina Pear	111
Norway Spruce	132
Notes on New Fruits	119
Nozzles	24
Obituary	78
Officers	2, 74
Olga Apple	104
Ontario Apple	30, 41, 120
Pana Pear	108
Peach Yellows	81
Pear Blight	81
Pear Culture, Experience in	53
Pear Leaf Blister Mite	113
Pear Orchard, Location	54
Pears, Report on	60
Pears, Russian	97. 108
Pear Tree Psylla	56
Peterboro' F. G. Ass	135
Planting Trees	54
Soil, choice of trees, etc	54
Plum Leaf Fungus	87
Plum Knot	80
Plum Rot	19, 23
Plums, Native	12
Pomace for Stock	68
Powdery Mildew of the Gooseberry	85
Powdery Mildew of the Grape	84
Potato Rot	22
Pottawattamie Plum	15
President's Address	7
Princess Strawberry	50
Problem of our time	123
Prunus Americana	14
" Dimissa	14
Prunus Domestica	13
" Serotina	14
Psylla on Pear	56
Purple Yosemite Plum	15
Pyrethrum	45
Raspberries, new	118
Raspberry Anthracnose	88
Red Panna Pear	109
Report of Fruit in Lambton County	127
Ribston Apple	40
Rollingstone Plum	14
Rostov Pea	97
Russian Fruits	94
Russian Pears	97
Sapieganka Pear	101, 102
Sary Synap Apple	99
Scab	32
Sheep in the Apple Orchard	114
Shot-hole Fungus	87
Slutsk	110
Spraying	46, 112
Statistics of Fruits	61
St. Lawrence	40
Stone Antonovka	94
Strawberries	50
Strawberries for Home Use	52
Strawberries for Market	52
Strawberries, Twenty Years' Experience with	52
Strawberry Leaf Blight	87
Synap Apple	98
Thinning Fruit	27
Thompson's Early	118
Tobacco	45
Tobacco Rot	84
Tomatoes as a Greenhouse Crop	130
Treasurer's Report	70
Trenton Apple	10
Uriuck Apricot	106
Van Buren	14
Warfield Strawberry	50
Wayant	15
Wealthy Apple	30, 41
Weaver Plum	14, 15, 17
Welcome Meeting	5
Weston Strawberry	52
White Doyenne	109
Whitesmith Gooseberry	61
Wild Goose Plum	16
Williams Strawberry	50, 52
Windbreak	33
Winnitza Rambour	111
Winter Nelis	53
Wolf	15, 16
Woolverton Strawberry	50, 52
Worden Grape	70
Yellows	81

ANNUAL REPORT

OF THE

ONTARIO FRUIT GROWERS' ASSOCIATION

To the Hon. John Dryden, Minister of Agriculture :

Sir,—I have the honor of submitting for your approval the Twenty-fourth Annual Report of the Fruit Growers' Association of Ontario. It contains information of great value to fruit growers, not only in the Province of Ontario, but also throughout the whole extent of our Dominion from the Atlantic to the Pacific ; who have so appreciated it as to unite with our Association in large numbers, making our membership the largest of any Association of its kind in the world.

You will notice that the papers and discussions are chiefly given by practical fruit growers and, therefore, have great practical value ; and, further, that the catalogues of fruits, both those for the guidance of judges and those for the guidance of planters, have been carefully revised and extended.

I have the honor to be, Sir,

Your obedient servant,

LINUS WOOLVERTON,

Secretary.

Grimsby, December, 1892.

OFFICERS FOR 1893.

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T. H. Race.....Mitchell.

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AUDITORS:

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COMMITTEES FOR 1893.

Fruit Exhibit. Messrs. E. Morris, Fonthill; J. D. Stewart, Russeldale; and W. S. Turner, Cornwall.

New Fruits. Prof. John Craig, Experimental Farm, Ottawa; Messrs. W. W. Hilborn, Leamington, and G. C. Caston, Craighurst.

Legislation. Messrs. E. D. Smith, Winona; A. W. Peart, Burlington; J. Cavers, Galt; J. K. McMichael, Waterford, and G. W. Cline, Winona.

Experiment Stations. Messrs. A. M. Smith, St. Catharines; A. H. Pettit, Grimsby; M. Pettit, Winona, and W. W. Hilborn, Leamington.

Pear Catalogue. Messrs. D. W. Beadle, 450 Markham St., Toronto; W. H. Dempsey, Trenton, and G. W. Cline, Winona.

Fruit Inspection. Messrs. A. H. Pettit, Grimsby; M. Pettit, Winona, and L. Woolverton, Grimsby.

Fruit Statistics. Messrs. E. D. Smith, Winona; A. McD. Allan, Goderich, and T. P. Carpenter, Winona.

Obituaries. Messrs. A. M. Smith, St. Catharines; D. W. Beadle, Toronto, and Prof. John Craig, Ottawa.

On representation on Advisory Board of O. A. C. The President and the Secretary.

CONSTITUTION AND BY-LAWS OF THE ASSOCIATION.

CONSTITUTION.

Art. I.--This Association shall be called "The Fruit Growers' Association of Ontario."

Art. II.—Its objects shall be the advancement of the science and art of fruit culture by holding meetings for the exhibition of fruit and for the discussion of all questions relative to fruit culture, by collecting, arranging and disseminating useful information, and by such other means as may from time to time seems advisable.

Art. III.—The annual meeting of the Association shall be held at such time and place as shall be designated by the Association.

Art. IV.—The officers of the Association shall be composed of a President, Vice-President, a Secretary, or Secretary Treasurer, and thirteen Directors.

Art. V.—Any person may become a member by an annual payment of one dollar, and a payment of ten dollars shall constitute a member for life.

Art. VI.—This Constitution may be amended by a vote of a majority of the members present at any regular meeting, notice of the proposed amendments having been given at the previous meeting.

Art. VII.—The said Officers and Directors shall prepare and present at the annual meeting of the Association, a report of their proceedings during the year, in which shall be stated the names of all the members of the Association, the places of meeting during the year, and such information as the Association shall have been able to obtain on the subject of fruit culture in the Province during the year. There shall also be presented at the said annual meeting a detailed statement of the receipts and disbursements of the Association during the year, which report and statement shall be entered in the journal and signed by the President as being a correct copy; and a true copy thereof, certified by the Secretary for the time being, shall be sent to the Minister of Agriculture within forty days after the holding of such annual meeting.

Art. VIII.—The Association shall have power to make, alter and amend By-laws for prescribing the mode of admission of new members, the election of officers, and otherwise regulating the administration of its affairs and property.

BY-LAWS.

1. The President, Vice-President and Secretary-Treasurer shall be *ex-officio* members of all committees

2. The Directors may offer premiums to any person originating or introducing any new fruit adapted to the climate of the Province which shall possess such distinctive excellence as shall, in their opinion, render the same of special value; also for essays upon such subjects connected with fruit growing as they may designate, under such rules and regulations as they may prescribe.

3. The Secretary shall prepare an annual report containing the minutes of the proceedings of meetings during the year; a detailed statement of receipts and expenditure, the reports upon fruits received from different localities; and all essays to which prizes have been awarded, and such other information in regard to fruit culture as may have been received during the year, and submit the same to the Directors or any Committee of Directors appointed for this purpose, and, with their sanction, after presenting the same at the annual meeting, cause the same to be printed by and through the Publication Committee, and send a copy thereof to each member of the Association and to the Minister of Agriculture.

4. Seven Directors shall constitute a quorum, and if at any meeting of Directors there shall not be a quorum, the members present may adjourn the meeting from time to time until a quorum shall be obtained.

5. The annual subscription shall be due in advance at the annual meeting.

6. The President (or in case of his disability, the Vice-President), may convene special meetings at such times and places as he may deem advisable, and he shall convene such special meetings as shall be requested in writing by five members.

7. The President may deliver an address on some subject relating to the objects of the Association.

8. The Treasurer shall receive all moneys belonging to the Association, keep a correct account thereof and submit the same to the Directors at any legal meeting of such Directors, five days' notice having been previously given for that purpose.

9. The Directors shall audit and pass all accounts, which, when approved of by the President's signature, shall be submitted to and paid by the Treasurer.

10. It shall be the duty of the Secretary to keep a correct record of the proceedings of the Association, conduct the correspondence, give not less than ten days' notice of all meetings to the members, and specify the business of special meetings.

11. The Directors, touching the conduct of the Association, shall at all times have absolute power and control of the funds and property of the Association, subject however to the meaning and construction of the Constitution.

12. At special meetings no business shall be transacted except that stated in the Secretary's circular.

13. The order of business shall be: (1) Reading of the minutes; (2) Reading of the Directors' Report; (3) Reading of the Treasurer's report; (4) Reading of the prize essays; (5) President's Address; (6) Election of officers, and (7) Miscellaneous business.

14. These By-laws may be amended at any general meeting by a vote of two thirds of the members present.

15. Each member of the Fruit Committee shall be charged with the duty of accumulating information touching the state of the fruit crop, the introduction of new varieties, the market value of fruits in his particular section of the country, together with such other general and useful information touching fruit interests as may be desirable, and report in writing to the Secretary of the Association on or before the fifteenth day of September in each year.

The President, Vice-President and Secretary shall be *ex officio* members of the Board of Directors and of all Committees. The reasonable and necessary expenses of Directors and officers in attending meetings of the Board of Directors and of Committees shall be provided from the funds of the Association.

Local Fruit Growers' Association.

16. It shall be the duty of the officers and directors of the Fruit Growers' Association of Ontario to encourage the formation of local fruit growers' horticultural societies in affiliation with the Ontario Association.

17. Any one may become a member of such local society for one year upon payment into its treasury of a minimum sum of one dollar; and a compliance with clause 18 of these by-laws shall constitute him also a member of the Ontario Association for the same term.

18. On the receipt of the names of such members, with the required fees, the secretary of such local affiliated society may transmit their names and post office addresses, together with the sum of eighty cents for each, to the Secretary of the Fruit Growers' Association of Ontario, who will enter their names as members of that society, entitled to all its privileges, providing the initial number of such names be not less than ten.

19. Each local society so affiliating, with a membership of not less than twenty-five, shall be entitled to a visit from some member of the board of directors or other prominent horticulturist, once a year, at their own request; it being understood that the railway expenses of such speaker shall be paid by the Ontario Society, and the entertainment provided by the local society.

20. The proceedings of such local fruit growers' horticultural societies shall, on or before the 1st day of December of each year, be forwarded to the secretary of the Ontario Society, who may cull out such portions for the Annual Report to the Minister of Agriculture for the province, as may seem to him of general interest and value.

21. These local societies, if formed in cities, towns or incorporated villages, may be formed under the Agriculture and Arts Act (see sections 37, 46 and 47) and receive their due share of the Electoral District grant for the support of such societies.

23. Each local affiliated society is further expected to send at least one delegate to the annual meeting of the Fruit Growers' Association.

The director of the Fruit Growers' Association of Ontario of the Agricultural District in which such society is formed shall be, *ex officio*, a member of the executive committee of such local society and receive notices of all its meetings.

AGRICULTURAL DIVISIONS.

1. Stormont, Dundas, Glengarry, Prescott and Cornwall.
2. Lanark North, Lanark South, Renfrew North, Renfrew South, Carleton, Russell and the City of Ottawa.
3. Frontenac, City of Kingston, Leeds and Grenville North, Leeds South, Grenville South, and Brockville.
4. Hastings East, Hastings North, Hastings West, Addington, Lennox and Prince Edward.
5. Durham East, Durham West, Northumberland East, Northumberland West, Peterborough East, Peterborough West, Victoria North (including Haliburton), and Victoria South.
6. York East, York North, York West, Ontario North, Ontario South, Peel, Cardwell and City of Toronto.
7. Wellington Centre, Wellington South, Wellington West, Waterloo North, Waterloo South, Wentworth North, Wentworth South, Dufferin, Halton and City of Hamilton.
8. Lincoln, Niagara, Welland, Haldimand and Monck.
9. Elgin East, Elgin West, Brant North, Brant South, Oxford North, Oxford South, Norfolk North and Norfolk South.
10. Huron East, Huron South, Huron West, Bruce Centre, Bruce North, Bruce South, Grey East, Grey North and Grey South.
11. Perth North, Perth South, Middlesex East, Middlesex North, Middlesex West and City of London.
12. Essex North, Essex South, Kent East, Kent West, Lambton East and Lambton West.
13. Algoma East, Algoma West, Simcoe East, Simcoe South, Simcoe West, Muskoka and Parry Sound.

THE ANNUAL MEETING, 1892.

The annual meeting of the Fruit Growers' Association of Ontario was held in the city of Brantford, beginning on Tuesday evening, December the 6th, 1892, with a public welcome in the Music Hall of the Institute for the Blind which was presided over by Principal Dymond, a gentleman who extended to the Association every possible courtesy.

THE WELCOME MEETING.

An organ solo, entitled, "*Marche Pontificale*" (Lemmens), was performed in opening.

Principal DYMOND said: It is certainly not by reason of any claim of a standing in the Fruit Growers' Association of Ontario, or of any connection with fruit culture that I have the honor to preside over your meeting to-night; but as the representative of this Institute, in welcoming you here, I express, I am sure, the hearty feeling of all my colleagues and those under my charge at seeing you with us.

If there be any who can appreciate the work of the fruit grower, I presume it is the fruit consumer. I speak of those who, although they may never yet have raised an apple tree to perfection, or become adepts in the description of a grape or pear, are not the less able to appreciate the labors of those who do enter upon those vocations. I had the honor some years ago of meeting your president, when acting on the Agricultural Commission, and I then tried to find out how much, or little, some of these gentlemen knew about fruit culture. I rejoice to know that the result of that undertaking, and of the intelligent efforts of some of those who have been laboring in the cause of fruit culture, has been the extension of the export of fruit to the mother country. Very little things sometimes produce an impression with regard to the character of a people, and, though packing a barrel of apples may seem a small thing, yet barrels of apples by the hundreds of thousands are sent to the mother land and the character of the people who send them is discernible from the character of the packing. But, as one who values above all the character of Canada in the mother land, I would desire perhaps more than most people that the feeling of affection between Great Britain and Canada should be nurtured, and I desire to see this friendship promoted by your Association.

Principal Dymond then called upon the vocal class, composed of about fifty pupils of the Institute, to render "*The Bridal Chorus*" (Cowen).

His Worship the Mayor (Dr. Secord) then addressed the meeting. He said: I am sure it gives me considerable pleasure, not only from my personal capacity, but also from my representative capacity as Mayor of this city, to be present and welcome the Ontario Fruit Growers' Association to Brantford. I am only sorry that the good opinion which possibly the gentlemen from a distance might have entertained of our constantly pleasant climate, should have been marred by unfavorable weather, but I can say that Brantford, in other respects, compares favorably with any other part of Ontario.

The meeting of the Ontario Fruit Growers' Association here for the first time, for the discussion of subjects of importance to the progress of their industry, certainly must tend to the comfort, happiness and general good of the community. The trend of the present age is toward recognizing the dependence of man upon man. Now, sir, your society is certainly an example of what persistent effort will do. I understand that you are well on to a third of a century in age and that from a small beginning, thirty-three years ago, you have grown to considerable proportions at this time. I can only say to you that you must have the gift of patience in observations. You take a seed, which

possibly you may have secured from some distant climate, entirely new to you and entirely new to your climate, and you will watch the development of that seed, and by the fruit which it bears you will endeavor to improve the grades which are already with us in Canada in such profusion.

Now, sir, possibly it would be more fitting if I were to confine my remarks to our own community and to the hearty welcome which we give to you. We welcome all men, and all ladies as well, and we hope that you will continue to prosper and go on adding to the happiness of our citizens by means of the health-giving properties of your fruit, so that in the future you will be one of the best recognized societies in the country, and that your influence will extend from year to year.

We have many things in our city to which I would like to draw your attention, but my time is limited. I may say that our city is one of no mean size, our population now reaching about sixteen thousand, and, while we have some defects and while we have some difficulties, we are happy to say that we are advancing, we are enlarging in population and we are improving in every way.

I thank you sincerely for calling upon me to give you an address of welcome.

The PRESIDENT : I assure you that we fully appreciate the hearty welcome which you have extended to us on this occasion. When your delegates to our meeting in Hamilton invited us to hold our next annual meeting in your city, we accepted with a great deal of pleasure. Our Association moves its meetings from place to place in this country in order to meet with many people who, by rubbing their wits together, help us to solve the great problems which confront the fruit grower ; and it is from the practical men that we get the most valuable information with regard to the methods of cultivation.

I must thank you again for your hearty welcome and ask you one and all to come to our meetings and assist us, not only by your presence, but with your voices, and thus help us to raise higher the banner of horticulture.

A combined piece was here rendered on the organ, two pianos and a triangle. It was entitled "*Marche Cortege*" (Gounod).

The SECRETARY : In the absence of Mr. Allan, who was to have addressed you on the "History and Work of our Association," I would like to say that we are just about thirty-three years old, and, not only are we an old Association, but, as our president has said in his remarks, we feel some pride in our growth. I can remember going to the first meeting of the Association, in 1860, when a boy. The Association was then composed of about a dozen members ; but, though few in numbers, they did good work in those days, quite as hard work in the interests of the country as the men of to-day. Particularly would I mention Mr. A. M. Smith, the pioneer fruit grower of the Niagara district and I might perhaps say of our country, as being one of the constituent members.

It is interesting to look back over those early years and consider the growth of our Association. The growth has been a healthy one and that is because we are working wholly in the interests of the public. That is the secret of our success. From that membership of one dozen we have grown to over two thousand, distributed not only over our whole province, but in every other province of our Dominion. Nearly the whole of the British Columbia Fruit Growers' Association has united with us, as well as many members of the Associations of Quebec and Nova Scotia. They consider that in receiving the annual report of our Association, a book of no mean size and of great interest to fruit growers, together with our monthly journal, which contains contributions from the leading fruit growers of Ontario, they are well rewarded for the little expense of being members with us as well as of their own Association.

We have included in our list of presidents Judge Logie, Rev. R. Burnet, W. H. Mills, P. C. Dempsey, Wm. Saunders, A. McD. Allan, A. M. Smith, J. A. Morton, and A. H. Pettit. The latter is well-known to you as the Superintendent of the Ontario fruit exhibit at the World's Fair.

Our work is educative. We have no personal interests to serve in our work, our object being to distribute information with regard to the best means of growing fruit and the best varieties to cultivate in the various parts of our province. One great aim, which we have had in view for some years, is the introduction of hardy fruits for Northern Ontario and we have imported large quantities of hardy varieties from Russia and placed them under test at the Central Experimental Farm, Ottawa. In due time these will be distributed to the members of our Association in the various parts of Ontario to be further tested with regard to their adaptability.

I believe that a very important part of our work is done by means of the *Canadian Horticulturist* through which we are able to communicate with one another the results of our experience with various fruits. Each year we distribute to all our members two good sized volumes, the journal and the report, and I trust that every year we may be able to make them of more value to the public.

The vocal class rendered in chorus "*The Cruiskeen Lawn*" (Stewart).

The President, A. H. Pettit, then delivered his annual address.

THE PRESIDENT'S ADDRESS.

Mr. Chairman, Ladies and Members of the Fruit Growers' Association:

It falls to my lot on this occasion to deliver an annual address, a custom that has prevailed in this Association since its first inception; I will therefore ask you to bear with me a few minutes while in the discharge of that duty. The year 1892, upon which we entered with such promises of success, is fast drawing to a close and we find ourselves gathered together in the city of Brantford, one year older, and I trust wiser, in the pursuit of horticultural knowledge. Each year brings us face to face with new anxieties, new hopes or realizations; realizations cheer us onward, but disappointments sometimes strengthen us the most; they make us study and dig down deeper into the laboratory of nature for the reason why. We cultivate the soil to obtain moisture and to obtain plant food, thereby to increase the fertility of our soil; we cultivate the mind in order to expand its power of grasping and solving the great problems in horticulture that are daily and yearly presenting themselves to us. In the spring time just past, the outlook was most promising; in many respects the whole country seemed to be one vast profusion of bloom, but a little later on our hopes were to some extent blighted.

More particularly so was this the case in the southern fruit belt of Ontario; some of us no doubt felt the show was too good to be realized. Looking on the dark side, sometimes we find just what we are looking for; indeed, how often do we find this to be the case, confirming us as it were in our gloomy predictions.

We are here to-day as fruit growers from all parts of this province to discuss questions of great importance to the interest we represent. The great fruit growing industry of this province demands at our hands the dissemination of sound, practical information, and wherewith are we to be supplied if not from the field of practical experience? If we fail in gathering the crop of information this section is so fully blest with, we fail in the realization of our visit in that respect. If we sow seed and it fails to germinate in this locality, we must attribute it to one of two causes: either that the seed was bad or

the soil was not congenial to its growth. If we sow and do not reap, this Association would become exhausted and its usefulness gone. It is by practical experience we arrive at a correct solution of the obstacles that present themselves, not in horticulture alone, but in all the various departments of agriculture.

A new enterprise has of late been trying to revolutionize the whole system of Nature, by the explosion of powerful substances, to cause the rain to fall upon the earth. Man often taxes his ingenuity to accomplish some great result, when perhaps the simple method lies at his very door. Gather up the crumbs—crumbs of practical experience—which can be obtained in quantities all over this land, along our highways, down our lanes, in our vineyards and orchards. Since this Association was organized, some thirty-three years ago, the most wonderful strides have been made in the science and practice of fruit culture. I, sir, once lived in the very garden of Canada; I live there still, but as years roll on, its boundaries keep widening out, until to-day they can only be circumscribed by the producer's knowledge and skill in the science and practice of his profession.

Some imagine this Association should agree and pronounce on what varieties of fruit we would advise for the intending planter. We can in some respects, but in their suitability to the various sections of a great province, like Ontario, with its various formations of soil and climatic influences affecting them, few men can determine with any degree of certainty. When our experiences and observations are noted down and compared, we often find good reading matter between the lines, as well as on the lines.

The matter of marketing and handling our fruit is a subject which should claim our best attention. Some twenty odd years ago, when this Association was organized under most favorable auspices, but laboring under many disadvantages, little was known as to varieties, their hardiness or adaptability to the different parts of this province. Markets were limited, facilities of transportation still more so. It was with doubt that almost any man except an enthusiast, approached the subject; but the little band stood bravely by the ship—she did not carry much canvas, but it was of good material—and to-day we rejoice in their success. They led the great army of producers on to victory in production, until to-day we stand amazed at the magnitude of its proportions, requiring more canvas, more seamen to man the sails and guide the ship laden with those productions, into the ever increasing markets of the world. The fruit growers of Ontario are to-day looking to this Association, their Association, to advance by every possible means the best interest of that branch of industry. How shall we best accomplish that object, in order that the producer may reap the full reward of his labor? Should we not first consider in relation to this matter the product, that, no doubt, cannot be excelled in *size*, *form*, *color* or *quality* by any country on the face of the globe.

Next, in importance, is the handling of that product from the tree to the market. We may grow the finest fruits the eye of man may desire, but if they are not properly picked, packed and placed upon the market in proper form, our best hopes of financial success can never be fully realised. Have we not fully arrived at that point where the magnitude of the interest demands our most serious consideration? Take up any catalogue of sales you like and the proportion of *slack*, *wet* and *wasty* is far greater than it

should be, sufficient to make the margin of profit or loss one of great importance to the fruit growers of Ontario and our country at large. I believe, sir, this Association has done much by the dissemination of practical information on the subject of fruit culture, and I believe to-day our best energies should be taxed in promoting and facilitating the marketing of that product. Our Constitution embraces in its objects every point that goes to make up the welfare and success of the horticultural interest of our country, an interest we have cherished with such an abiding faith in its future, one that to-day is adding millions to its resources, not alone in its intrinsic value, but in its health inspiring influence as a ration for young and old alike. We have to-day committees on the various fruits calculated to give, by their long and wide experience, valuable information to intending planters.

We have committees on experimental work, committees on legislation, could we not have a committee on marketing, whose report might be published through the *Horticulturist* at the proper season, and thus our Association might become, even more than it is to-day, the channel of wider information on the subject. Then I have reason to hope you will see thousands of the fruit growers of Ontario joining our ranks, adding strength by their counsel and influence to advance the good work.

The matter of an experiment station for the southern fruit belt of Ontario, where new fruits could be tested and their merits reported upon to the public, has been discussed by this Association, and for the want of some definite plan, whereby it would best serve the interests of the people, no action has yet been taken. A paper on this subject will be brought before the Association at this meeting.

In reference to my work in connection with the Ontario exhibit for the World's Columbian Exposition, I might say that reasonable results have thus far been obtained. The season has been most unfavorable in many respects, and the wide range of varieties in their perfect form was very hard to obtain. The fruit crop of the southern fruit belt of Ontario was deficient in size, form and color, and this rendered the work one of continual anxiety as to where it would be possible to obtain certain varieties. Had I specified to the growers that certain lines of fruit were required from them, I would have kept them in continual suspense, and in many cases no doubt an amount of correspondence would have been the only result. As it is I feel we have a fairly good representative collection of the fruits of this province. I must express my most hearty thanks to the fruit growers of Ontario for their liberal contributions for that purpose, and also for their cheering words of encouragement in the work in which I was engaged. When I was asked to assume the responsibility I must say I shrank from the task. I felt I had been honored by this Association placing me in the chair, and this was the first duty that devolved upon me, as such, in carrying the horticultural banner. I paused, I looked at the great army of fruit growers of Ontario and I said, they will strengthen my hands. I have not been disappointed in my faith.

From one end of this province to the other I have found men who, if they had nothing to send, felt they had a duty to perform, and in the discharge of that duty sen their regrets. What more could I ask? In many cases the utmost liberality and patriotism was displayed. We still have another season before us in which every fruit

grower in our land is asked to uphold the horticultural banner of this province, not for self, but for the honor of his country. A good name is worth millions to a nation, and gives dignity to a people. Where is the man who does not feel proud to see his country stand at the head in all lines of her products, for they, above all others, speak of the glorious climate of Canada, which is too often associated in the minds of the people of the old land with *ice palaces* and bears; they even go so far as to imagine that we live in danger from the Red-skins, a race, all honour to them, which has always proved true and loyal to their good mother, the Queen.

I ask you to-day as fruit growers of Ontario, seeking, as I trust, by every means in your power to advance the fruit interests of Ontario, that you will display during the coming season that energy, that liberality and that patriotism that has characterized the people of Canada at all times and on all occasions, and leave no stone unturned to place the fruit exhibit of Ontario in its proper place.

Some definite plan of operation as regards shipments will be arranged, whereby our tables will be continuously supplied during the season with fresh fruits. These will be exhibited in the producer's name, while at the same time they will form the Ontario exhibit.

Since last we met one of our most valued members has been called to his reward, our late President and co-worker, P. C. Dempsey of Trenton, one always at his post when duty called, one whose wide knowledge of and skill in the field of horticulture gave courage to many a doubting one, and whose cheerful presence lent a charm to our meetings. He leaves behind him more than one monument to his memory.

The "Dempsey" pear, the "Trenton" apple and many other choice fruits for the nation to enjoy were produced by his skill and attention. Let me here quote his own words when referring to the success of others and at the same time inspiring other young men to follow their example. He said: "And what richer legacy can a man leave to the generations that are to follow him than a fine, delicious fruit which he has originated with his own hand. This will be a living monument to his memory when posterity shall recline beneath the shade of its branches and pluck the precious fruit from the trees which he has left them." Truly I believe not one member in our ranks could these words be more applicable to than our departed comrade, P. C. Dempsey, and spoken by his own lips in honor of other men, may we not pause at the threshold and ask ourselves, is it possible for us to leave some token that others may cherish in remembrance of us?

I will not detain you longer now, but invite you one and all to come to our meetings, which will be in session here during the next two days, and by your presence, by your counsel and experience, help us to carry the horticultural banner on to greater successes. We see our cheese producers with their product standing *par excellence* in the market of the world; we see our butter producers climbing the pedestal to fame, and inscribed upon their banner "Pure as Gold." I ask the fruit growers of Ontario to-day to join our ranks, not as reserves, but as active volunteers in the work, until our system of production, of picking, packing and handling and transporting the fruit products of this favored land, o'er every sea to every land, receives universal approval, and then we may truly inscribe upon our banner something better than *gold*.

Several gentlemen asking to hear from Alderman Raymond, he responded as follows

Alderman RAYMOND: I must thank you for your kind and flattering introduction of myself, which adds to my embarrassment in the few words I may have to say of welcome to the Fruit Growers' Association of Ontario. I believe in the remarks of our worthy Mayor with regard to the city in which we live and we welcome to it the Fruit Growers' Association with joy. We are glad that they will hold their annual meeting in our city. The Association which meets here is certainly an important one, and, judging from the address of the President, is one which is doing very good work, not only adding to the health, happiness and comfort of our people, but adding to the wealth of our country. The export of fruit from our country is constantly larger. Perhaps the cultivation of fruit may in some degree make up to the farmers for the losses which they now experience from the falling in the prices of wheat and oats.

One part of the business of the Fruit Growers' Association is to prevent the spread of fungi and insect pests in the orchard, and in this I may say I wish them every success. It is said that he is a benefactor who makes two blades of grass grow where one grew before, but he who can make two strawberries grow in the place of one is a still greater benefactor. I would wish the Association every success in their deliberations in Brantford. The President has said that he came from the garden of Ontario. While perhaps the Grimsby district is noted for the growth of fruits, we think that no part of Ontario is more charming than that which surrounds Brantford and I hope, as one result of your deliberations, that more fruit may be grown in this vicinity.

The "*Silent Land*" (Gaul) was impressively rendered by the vocal class.

T. H. RACE (Vice-President).—The duty that devolves upon me first is to join with the President in thanking you for the very cordial greeting which we have received to-night and for the very excellent treat we have had in the music rendered by the pupils. I know you have a beautiful town. There are three or four things which weigh with me very largely in making up the character of any town or locality. When I find the people of any community patronize and support well the churches, when they produce the very best newspapers and when they have large and prosperous vineyards and orchards of fruit I take it for granted that this people are to be commended. I was very much pleased in looking about this town to see that you have given so much attention to beautifying the homes, and that besides being fruit growers you give a great deal of attention to floriculture, for I believe that the cultivation of flowers has a great moral influence.

The vocal class rendered "*Ye Banks and Braes.*"

The Rev. Dr. COCHRANE, after some happy allusions to previous speakers, tendered a hearty welcome to the Fruit Growers' Association of Ontario. It was one of the characteristics of Brantford that its many comfortable homes were adorned with flowers, and its parks and streets gave evidence of the love of the beautiful in Nature possessed by its people. The humblest dwellings had their little gardens and flower-beds, and even the children in our schools rivalled each other in flower-gardening. He believed that there was a close connection between the love of the beautiful in Nature and the love of the beautiful in Morals, and the man who saw God in Nature and admired Him in His works would also be found of the highest style of character. Dr. Cochrane referred to the fact that Canadian horticulturists might profitably engage in fruit growing, as the English market was open to receive all the larger fruits they could send, at prices more remunerative than now received for staple cereals. He trusted that the present meeting would be a profitable one, and that they would continue to receive both from private individuals, and the Ontario Government that support which the importance of the Association demanded.

The vocal class rendered in excellent style a magnificent selection entitled "*The Last Judgment*," accompanied by the pianos and organ.

JOHN CRAIG: I wish to say on behalf of the Directors and members of this Association that this evening's entertainment has been a remarkable opening for our meetings and I move a vote of thanks to the worthy principal of this Institution and his class, who have so ably entertained us.

MURRAY PETTIT: I second the motion. I think this musical entertainment reflects very great credit upon the management of this Institution. The motion was carried.

SECOND DAY—MORNING SESSION.

The Convention was called to order at ten o'clock a.m.

President PETTIT expressed his pleasure at seeing so many present. Brantford being in one of the best fruit-growing sections in Canada, a large meeting was expected. The programme this year has been so arranged that the audience would occasionally be asked what subjects they would like to have brought forward, in order that every subject that it is wished to be discussed may be dealt with, and if time does not permit discussing every subject, the subjects least interesting will thus be left out. All persons present are invited to take part in the discussions.

NATIVE PLUMS.

Prof. JOHN CRAIG, of the Central Experimental Farm, Ottawa, in introducing his paper, said his remarks might not be of great interest to fruit growers in this immediate vicinity, because at present the quality of the native plum may not commend itself to places such as Brantford, where plums can be finely grown; but there is a great future for the native plum in our colder and northern districts. The following remarks are based on our experience at Ottawa for the past five or six years.

Hawkeye.

Up to the present very little attention has been given in Canada to the cultivation and improvement of our native plums. Few lines in horticulture offer greater inducements. Comparatively little has been accomplished in the United States by systematic effort, yet since the introduction of the wild goose plum, about forty years ago, more than 150 varieties have been named and disseminated. This remarkable growth and increase in number of varieties is only surpassed by the marvellous progress made in the development of the American grape. The value of the American plum has not yet been recog-

nized to any extent except in sections where the severity of the climate precludes the easy or profitable culture of varieties belonging to the *Prunus domestica* class; without doubt, however, there are improved varieties of our native plums which may be grown profitably in all portions of the Dominion, including the most favored localities as well. There is a wide variation in regard to the hardiness of these varieties, due principally to climatic conditions prevailing in the place of origin. Thus DeSoto, belonging to the *Americana* group, and originating in Wisconsin may be taken as the type of hardiness,

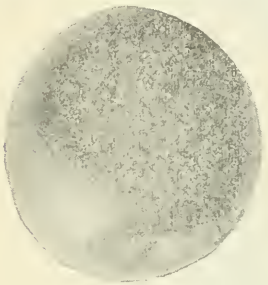
De Soto.

while Pottawattamie of the Chickasaw family, and introduced from Tennessee, is not hardy at Ottawa. Up to the present year the botanical status of American plums has been very unsatisfactory. An excellent monograph by Prof. L. H. Bailey, Horticulturist at the Experiment Station of Cornell University, has been a great advance in placing these fruits on a sound scientific basis. Formerly our cultivated native varieties were grouped under three wild types (1) *Prunus americana* (Marshall), the plums of the north and west; (2) *Prunus augustifolia* or *P. chickasa* (Mich.) native of the middle and southern States, and (3) *Prunus maritima* (Wangheim), known as the Beach plum of the south. Much confusion existed, however, as many of the cultivated forms could not be satisfactorily assigned to any of these original types. As a result of Mr. Bailey's labours, assisted by Prof. Sargeant, we shall recognize hereafter another class under the name of *Prunus hortulana*. This is made up of what was formerly known as the Wild Goose group, which in the past was generally referred to the Chickasaw tribe. This group now occupies an intermediate position between *Prunus americana* and *Prunus chickasa*. To these three groups belong practically all the native varieties cultivated in Canada, and from them we may expect important additions to our lists in the future. As already

stated *Prunus americana*, by reason of its natural distribution, extending all over the northern parts of the continent to Manitoba and part of the North-west Territories, contains in its variations the hardiest forms of the native plum known to cultivators. These are suitable for culture in the coldest parts of the province; and where nothing in the way of fruits except the chokecherry (*P. serotina*) and pin cherry (*P. dimissa*) obtain, it is safe to plant improved forms of this species. On account of this wide distribution, touching as it does Manitoba on the north and Texas on the south, there is much variation in the hardiness of the individuals making up the species, and this, as already pointed out, is an important point for the consideration of intending planters.

The following cultivated varieties belong to *Prunus americana*, and have been on trial at the Central Experimental Farm for the past three years:

Cheney.—Fruit large, roundish, oblong; skin thick, a dull yellow mottled with red; flesh fairly firm and sweet; quality good; stone medium size, adhering to the flesh. Tree a very vigorous grower, needing annual shortening. Remarkably prolific. Ripe at Ottawa the first week of September. The variety originated as a wilding near La Crosse, Wis.



Cheney.

DeSoto.—Fruit medium to large; round, oblong, sometimes pointed; dark red with a beautiful purplish bloom; skin thick; flesh juicy, entirely free from astringency; stone medium size. This undoubtedly is one of the best red plums. It ripens about September 15th. Found wild at DeSoto, Wis. Although it was introduced by Elisha Hale of Lansing, Iowa, nearly thirty years ago, it has not received the attention which a plum of its excellent qualities merits.

Forest Garden.—Fruit medium size, round or slightly egg-shaped; skin thick, yellow, overlaid with darker mottlings, and a light lilac bloom; flesh yellow, with some astringency, fairly good; stone separates readily from the flesh. This tree is a difficult one to manage in orchards, being a rampant grower, throwing out long horizontal branches which are apt to break when heavily laden with fruit, or during wind storms.

Hawkeye.—Fruit large, almost round; dark red with lilac-colored bloom; suture indistinctly marked; flesh deep yellow, firm and juicy; stone large, flat, parts readily from the flesh. Equal to DeSoto. Ripe Sept. 20th. A valuable late variety which originated under cultivation, and was introduced by Mr. H. A. Terry, Crescent City, Iowa.

Ida.—Medium size, oval, with slight suture; skin thick, dark red in color; flesh yellow and unusually firm for a red plum, with little juice; stone medium size, almost free; fair quality; hangs well to the tree and becomes quite sweet and sugary ripe; ripens soon after the middle of September. Tree hardy and vigorous. Originated in Illinois.

Rollingstone.—Fruit large, reported very large in some sections; round, flattened at both ends; skin deep yellow almost covered with red and purple mottlings; flesh yellow, firm, good quality; stone medium to small, cling; ripens about the middle of September. Found by O. M. Lord on the bank of Rollingstone Creek, Minnesota, and by him introduced into cultivation. Valuable on account of its earliness.

Van Buren.—Designated by Prof. Bailey as variety *mollis* of *P. americana*. The tree is true to the type, but the fruit seems quite distinct, and is unique among red plums, in that it is a perfect free stone. Fruit medium, roundish, oval; skin thick, yellow with a pink blush; flesh yellow, sugary sweet and melting; picked this year September 25th. Shows a tendency to crack. Not as hardy as many of the preceding. Originated in the State of Iowa.

Weaver.—Three trees of this variety planted in 1888 have borne good crops the past three seasons, the last two very heavily indeed. Fruit large, oblong, flattened; color dark red, overlaid with a purplish bloom; suture well marked; stone long, narrow

and flat, cling ; ripens at Ottawa about the end of September. Originated in northern Iowa and was introduced in 1875. This I believe will be valuable wherever it will ripen.

Wolf.—Fruit round, medium to large ; dark red covered with dense purplish bloom ; flesh yellow, tinged with red, firm, good quality ; stone separates readily from flesh. A more attractive variety than DeSoto but hardly equal in quality. Tree distinct, having young shoots heavily covered with a downy pubescence. Originated under cultivation in Iowa about forty years ago.

Wayant.—Tree has partially failed at Ottawa. Fruit of Van Buren type ; firm, meaty, entirely free. Probably more valuable for the south.

Weaver

Purple Yosemite.—A good tree, bearing fruit of fair size and quality, but ripening with Rollingstone, which it does not equal. *Yellow Yosemite* is quite similar and a little later in ripening.

The above list includes the best of the *americana* which have been fruited at the Central Farm. Among those which can be recommended to planters where the finer varieties (*P. domestica*) fail are Cheney, DeSoto, Rollingstone, Wolf, Weaver and Hawkeye, and if a free stone is desired Ida, Wayant or Van Buren may be added.

Chickasaw Plums (*P. Chickasa*).—Accepting Prof. Bailey's classification, none of the Chickasaws have proved hardy at Ottawa.

Newman, originating in Kentucky some years ago, is one of the best known of this class. It is hardy in Central New York and would probably succeed in western Ontario. Fruit large, of good quality, ripening very late, sometimes not before the middle of October.

Pottawattamie.—This very much lauded variety seems to be deserving in many sections of the high measure of praise accorded it. Fruit is medium to large, round and light, red in color, of good quality. It was introduced by J. B. Pice, of Council Bluffs, Iowa, to whom it came from Tennessee among a lot of Miners.

Wild Goose Tribe: *P. hortulana* (Bailey).—None of this class are hardy outside of peach-growing districts, *Garfield*, *More Man* and *Wayland* are the most valuable.

Miner has been included as a variety of this class, but it differs so much in general appearance and constitutional hardiness as to lead me to believe it to be more nearly related to *Prunus americana*. This is the oldest native plum known under cultivation.

Wolf.

It was raised from seed in Tennessee nearly 80 years ago, and has become widely distributed throughout the western States. Trees planted eighteen years ago at Abbotsford are hardy but only give medium crops every other year; ripens there early in October. These trees have given fuller crops the last few years since being surrounded by Wisconsin wild-plum seedlings.

Forest Rose belongs to the Miner group, but has nothing special to commend it.

Diseases.—They are all more or less liable to attacks of *Septoria* (shot-hole fungus), but are generally freer than numbers of the *domestica* class. The Chickasaw varieties have exceptionally bright healthy peach-like, foliage. As there are no such things as curculio or knot-proof plums, except in a relative degree, we may expect to have to fight these enemies with the above as with the old varieties. A new disease which has come under my notice within the last two years and the past season has caused the almost entire loss of the native plum crop. Should it continue its depredations it bids fair to effectually check further planting of these varieties. The presence of the fungus is marked by round spots which appear on the skin of the plum when almost mature; shortly after it suddenly shrivels and drops. This spotting is caused by a parasitic fungus called *Cladosporium carpophilum*, a disease which also is found on peaches, and has been recently noticed on cherries. We have no data of actual experiments in treating this

fungus, but would recommend spraying with ammoniacal copper carbonate, and would also suggest the use of a solution of copper sulphate, 1 oz. to 25 gallons.

Propagation.—Varieties of the *americana* and Miners should as far as possible be grown on stocks of their own type. It is sometimes difficult, however, to distinguish scion from stock when these are used. The Chickasaw and Wild Goose tribe succeed admirably on peach or Marianna stocks and these are preferable to own rooted trees on account of sprouting habits of the latter.

Points in Favor of Native Plums.—The following are the leading points in favor of native plums :

1. Hardiness and productiveness.

2. Their wide range of adaptability to climate conditions and to light as well as heavy soils.

3. Their value for culinary purposes.

4. Their comparative exemption from disease and the ease with which they can be propagated.

A. M. Smith : Is there in these native varieties sufficient value to take the place of the plum we cultivate so freely in this section of the country ?

Prof. Craig : I don't think they would, especially in this section ; but there are sections of Ontario where we are trying to cultivate plums, and get a crop once in four or five years, where I think it would richly pay a grower to plant these varieties. With these, you can get a crop every year, and they are very marketable varieties.

Dr. Beadle : Have you taken notice of the point to which Mr. Weir first called our attention—that it is necesary first, in order to get a crop of fruit from, say, one of these plums, to have one of a similar type growing near them ; because they do not fertilize from their own pollen ?

Prof. Craig : The Miner is deficient in fertilizing qualities ; it is not perfect in its own pollen ; the pollen is frequently impotent, and will not fertilize its own flowers, we had attention drawn to that in the Province of Quebec. Miners were planted first, and blossomed invariably for a number of years ; but very seldom bore any quantity of fruit. Later on, Wisconsin wild plums were planted in the vicinity of the Miners, and they grew up very rapidly, and blossomed and bore fruit of themselves, but at the same time the crop of Miners very much increased—showing that the cross-fertilization took place between the wild plums and the Miners ; but I do not know any variety that I have mentioned that seems to want cross-fertilization.

A Delegate : What about the Weaver ?

Prof. Craig : The Weaver has been planted quite isolated from others in the orchard and they grew quite heavily.

Mr. F. G. H. Pattison (Grimsby) : I have had eight or nine trees that I alway understood to be Weaver, but they do not answer your description at all. The tree is a very vigorous grower, and has a leaf almost exactly like the peach. The plum is evidently one of those hardy varieties : it is a very early ripener—ripens in July ; is of a light red color, and of excellent quality ; but so far—the trees are about five years old—a v shy bearer, with a very thin stem. I have had a great many people look at this plum, and the consensus of opinion seems to be that it is a Weaver. Mr. Woolverton thinks it is a Weaver ; and if it is not a Weaver I would like to know what it is. Mr. Woolverton has a tree identically the same, and I understood it was a Weaver.

The Secretary : I bought the tree for a Weaver ; and I bought quite a number of trees with a special purpose of becoming acquainted with varieties ; and in quite a number of cases I have been disappointed in their identity.

Mr. Gott (Arkona): In our section the European varieties have entirely given out—the black knot is so intensely severe that we can't get them to bear for any length of ime. We have resorted to these native plums. The American class, for instance, is

able in some respects to take the place of the European, and we are now experimenting with them. They grow splendidly, and appear to be flourishing in every respect, and as yet we have not seen the slightest approach of black knot upon them. We are not so sure that they are curculio-proof; but in infancy the fruit is so hard that it is almost impossible for the curculio to penetrate them. Then there is the apricot—a fruit in which we are intensely interested all through this country. They flourish most abundantly with us, as they do in the entire western part of the country. The blossoms come out with a perfect sheet. I never saw anything like the display we had last spring for ornamentation; but they are terribly disappointing as to fruit.

Prof. Craig: I fruited a Botan at Ottawa this year, and it was the earliest plum in the whole collection. It was ripe about the 15th July. It is a small round red plum, with the smallest pit I ever saw in a plum—about the size of a New Jerusalem cherry. The *Prunus Simoni* grows at Ottawa, and the tree is quite an ornamental thing, but it is going to be no bearer.

Prof. Craig: The Weaver plum was introduced in 1865, by C. J. Paton, of Charles City, Iowa.

Mr. Morris: There is another plum that fails to fertilize itself—the Wild Goose.

Mr. T. H. Race (Mitchell): I think there is no doubt that the plum Mr. Pattison has described is the Weaver plum, which I have seen growing in nearly all the parts of this Province, and it does vary some in regard to location. It is a very heavy grower, but it has so far turned out as a very shy bearer. Where the Weaver can be grown at all I have noticed in many sections that the wood is subject to as light frost as some cultivated varieties.

Mr. G. C. Caston (Craighurst): At Parry Sound I saw and was allowed to taste a can of native plums, and pronounced them as good as almost any cultivated varieties—entirely free from that astringency found in wild plums. It is said the seeds of those plums were brought originally to Simcoe county from France by the Jesuits, and they have been propagating themselves in that wilderness for two hundred years. The natural propensity of fruit is to deteriorate; but the sample I tested was an exception—I don't think we could get anything better than that. It took first prize at the district show as canned fruit. It has no name. There are different varieties, but this is one of particular excellence. It was about the size of a Lombard. I think in the northern country there would be a field for some enterprising nurseryman to get that plum and disseminate it. I consider our wild plums good to graft the more tender varieties on; the wild stock imparts its vitality and vigor to the more tender variety, and we get a more vigorous growth of wood, and a greater quantity and better quality of fruit. I think it is the most successful way of growing plums in the northern districts.

Mr. Race: Is there anything to be gained by growing these native plums, so-called? As far as I have seen in the Province they are not a success at all, and there is only this to be claimed for them, that they are curculio-proof. My idea is that the curculio has too much contempt for them—and that is about my feeling. We can grow the better varieties, and the native plums that have been taken from their native condition are not satisfactory. You find plums growing in bushes that are worth something, but grown in a nursery they are not satisfactory.

Mr. A. McD. Allan (Goderich): People speak of trees being "curculio-proof." Now, there is no such thing, either in the generally-cultivated plum or in the wild plum. I know of no such thing as a curculio-proof plum. There are some varieties less subject to curculio than others; but I would like all parties here present, and any one interested especially in this Association, to distinctly understand that, as an Association we do not allow anything of that sort to pass. Speaking for myself, coming from a plum district as I do, I would say we have nothing there—and we have cultivated natives too—that is curculio-proof; but the best we can say of them is that some varieties are less subject to curculio, being extremely hard at the particular time at which the curculio is in for active work. Along the Lake Huron shore we have not gone very largely into the cultivation of new varieties spoken of. To some extent they have been tried, and some

of our own natives have been grown; but they are discarded, as a rule, for the general line of cultivated plums; and as far as the black knot is concerned, we do not fear it now as we did. The experience is that if the black knot law is enforced in a plum section by individual growers, there is little danger in after years. The plum orchard can be so protected and the black knot so taken care of in the younger years of the tree that in after years you will have little or no black knot to attend to. We have found it so. We still stick to the better imported varieties as more suitable generally for the market. As to these newer varieties spoken of in Mr. Craig's excellent paper, I would like to see some of them cultivated for culinary purposes. They are not dessert plums; but we find when we go to the markets that the general consumer wants a plum that is both culinary and dessert. We cannot find that amongst these newer varieties, and hence we still stick to the old varieties, selecting from them.

PLUM ROT, AND SPOT OR SCAB.

The following questions were then offered for discussion:

Experience in treating rot (Monilia).

Has anyone noticed the presence of "plum spot or scab" on red plums?

Prof Craig: The plum spot or scab that I referred to has been already described in the paper. It is indicated by a small round red spot. Later on the plum shrivels up and drops suddenly. I would like to know something as to the spread of this disease.

Mr. Turner (Cornwall): We have diseases of that description in Cornwall. It is not spreading, apparently.

Mr. Caston: I have noticed it to a small extent on the common wild varieties—not nearly to such an extent as on the cultivated varieties. There is no doubt it will become quite prevalent.

Mr. Allan: In the newer varieties I have noticed less plum rot than in the other varieties; as a rule that species of plum is a heavy bearer.

Mr. G. W. Cline: I have had quite a lot of plum rot for several years, and a year ago last season I treated it with an ammoniacal solution; and in the early spring, before the trees leafed out, and afterwards, with the carbonate of copper in connection with Paris green in spraying for curculio. That season I had scarcely any rot. I also threw sulphur in the trees about the time of ripening. This last year I did not spray before the trees leafed out, but I sprayed with the carbonate of sulphur and solution of Paris green, and I had plenty of rot,—a year ago I had scarcely any; but whether to attribute it to the spraying I don't know. I sprayed twice or three times with the carbonate in the Paris green, but I didn't use the ammoniacal solution at all. When I sprayed for the curculio and added the Paris green it was just along when the fruit was formed. I would not like to say there had been a specific remedy.

Dr. Beadle: Do you not notice that the fungus—what we call the rot—makes its appearance just about when the fruit is beginning to ripen?

Mr. Cline: My plum trees were never heavier loaded than they were this year, but it seemed that the wet weather coming on at that time of year, caused them to rot. I did not have more than one-third of a crop, just through that.

Mr. A. M. Smith: I noticed the same thing in my trees. Some that were heavily loaded dropped off early.

Mr. Race: I have seventeen varieties that I am growing. I have only two subject to rot—the Glass' seedling and the Quackenbos.

Mr. Allan: That is only one.

Mr. Cline: They are two distinct plums, without a doubt.

Mr. ALLAN: I have tried for years to find out, but I cannot find any further difference between them than I can find between two plums taken off one tree. You will find differences in different soils in the same plums.

Mr. M. PETTIT: My experience is only of one year, and I do not know that it would be of any benefit. I thought this year spraying had been a great benefit, but possibly it might have been from some other cause. Where I used it was on Lombard plums that had rotted very badly the previous season. This year they commenced again when they were quite small—the size of a bean; great blotches commenced to appear the same as they did before; and I sprayed with sulphate of copper. I used two ounces of sulphate of copper in a forty gallon barrel, and left about six days between the sprayings, and this—or some other cause—entirely stopped it, and the plums were quite clean in comparison with the previous year.

The SECRETARY: I have been experimenting with these fungicides with a good deal of success. My plum orchard is too small to give me much experience with plums, but I think I can see an advantage in treating plum rot with copper. Mr. Blanchard, who has been conducting the experiments for me, is here and may have something to say.

Mr. BLANCHARD (foreman for Mr. Woolverton, the Secretary, Grimsby): I have been treating a plum tree that was especially bad with the rot—a McLaughlin. For two years I have been trying the carbonate of copper. This tree is standing right alongside a spruce and it is growing partly into it; and I think that is one thing that makes it rot more than others—because the spruce keeps it damp and wet, especially in cool weather. I sprayed it three times for two years now, and I find it completely prevents the rot and the tree bears every year a big heavy crop. Though this year has been especially bad for plum rot, I found the carbonate stop it suddenly. I use three ounces to 25 gallons; this was the powder in connection with Paris green.

Mr. ALLAN: When do you apply it first?

Mr. BLANCHARD: Just at the time when you spray for curculio. I find when they are grown to that size they rot the worst.

Mr. ALLAN: Did you ever try using the solution before the leaves appear at all?

Mr. BLANCHARD: No.

Mr. CLINE: I have tried that.

Mr. ALLAN: Did you decide that there was benefit in doing so?

Mr. CLINE: I only tried it one season. I sprayed it twice before the trees leafed out and also used the carbonate in suspension with Paris green, and also sulphur; I had no rot that year, I also picked all the rotten plums off the trees; and I would advise every person to clean the ground of every rotten plum they can find, and burn them.

Mr. ALLAN: There is no doubt benefit to be gained by using the solution at least once before the leaves appear at all.

Mr. CLINE: I think so.

The SECRETARY: I think Mr. Allan has struck a very important point, that our efforts to stop the plum rot must be by prevention, and that we want to begin in advance. We usually wait till we see the rot and the mildew appearing before we take any measures to treat them; and then it may be too late. In using the Bordeaux mixture in the vinery I have had almost complete success in preventing mildew.

Mr. PATTISON: Does not Mr. Cline find a great difference in the plum rot according to the soil the plum is grown on? I have a plum orchard on a heavy clay soil, but I have had no rot whatever, I think Mr. Cline told me that those of his trees that are on heavy clay do not suffer from rot.

Mr. CLINE: Yes, that is true; I find that the lighter and moister the soil, the plums seem to take the rot the more readily than they do on the heavier clays. Plums do not grow so large on those heavier clay soils. I have a small orchard that has been planted some twenty-five years, and there is very little if any rot in it; although within less than

a quarter of a mile from it, on lighter soil, they rot quite badly. Another thing about plums: if you plant them where they are open to the air it is a great preventive of rot. If they don't get the wind to keep the dampness away they are very apt to rot.

Mr. HILBORN: Isn't that true of peaches

Mr. CLINE: I think it is, even in grapes it is an advantage to cut away some of the foliage, if very heavy, and let the air in underneath.

Prof. CRAIG: I am very glad indeed to have evidence coming in from so many sides on this question. It is especially gratifying to me that the growers are taking it up and getting practical results. Using the carbonate of copper in suspension without the ammonia is a valuable and cheap preventive for fungus.

Dr. BEADLE: We should emphasize the necessity of spraying early. When this fungus appears so that we see it, it has gone to seed, The spores, as we call them—or seeds, as they might be called—fall upon the fruit, and in favorable circumstances they spread immediately—take root, as you may say—into the tissues of the plum. After that has taken place, all the carbonate of copper in the world won't be of any possible benefit—the fungus has got into the tissues of the plum, and is out of reach. The great point is to kill the first crop.

Mr. CASTON: We are told by the scientists that the germs of all this fungus are ever present with us, but one year is more favorable than another. I find they do the greatest damage in wet, close, damp weather. If we have a breeze blowing so as to keep the grain moving, we have no rust on the wheat. Do these fungicides kill the germs, or does any aroma given off repel the germs? Does any one know whether the fungus may not take the leaf or the young wood and go up by the way of the stem into the plum, so that the rot may be from the inside instead of the outside? How does this spraying mixture act in repelling these diseases? Is it of much practical value in a season that is favorable for the propagation of these diseases? Will the game be worth the candle, considering the cost of it?

Mr. ALLAN: It is like mildew in grape. The same principle applies. We used to use the sulphur on the grape about the time the mildew appears. Now we scatter the sulphur upon the soil; and the result is, so long as we have a good current of air surrounding the vines, we find very little difficulty in subduing the mildew. That is the reason I introduced that point into the discussion—as to using the solution before the leaf appears on the plum tree at all—and the important point, in the fall of the year, of seeing that your plum trees are perfectly clean—not only the trees themselves, but the soil under the tree. All dropped plums should be gathered up and destroyed, because those are all contributing towards the disease we are fighting.

Mr. HUNTER: Has any gentleman had success in spraying this spring for the fungus? It rained so incessantly that any solution you might put on would be washed off.

Mr. ALLAN: I have had success, although the continual rain was a perfect nuisance, and you had to keep up a continual spraying. I did so on a few trees; but I found the first spraying was the all important one.

The SECRETARY: I think several of the instances given have reference to this year. With regard to Mr. Caston's question: How does the poison act on the fungi? As I understand it, it acts by direct contact. The fungus is a little plant growing upon the leaf or fruit, and it appears that it is easily injured in those cases—more easily acted upon than the foliage of the tree—fortunately for us, because if we do not make our poison too strong, we can destroy the fungus without injuring the foliage. The spores can be affected by the poison as well as the little plant itself. That is the explanation of the utility of applying poison before the foliage appears; because these little germs must live somewhere through the winter, and it is thought they do live through upon the old leaf, upon the rotten fruit; and some have thought that the apple scab is bred upon the little buds and is waiting for the time that it can damage the foliage.

Mr. CASTON: Will the early application of the fungicides affect the foliage so as to render it proof against attacks?

The SECRETARY: Even before the foliage appears it is recommended to use the sulphate of copper strong—even as strong as one pound to twenty gallons of water—so that there would not be any left to attack the tree.

Dr. BEADLE: The question is: Suppose the leaves are open, then we spray; does that render those leaves proof against the growing of these fungus spores upon that leaf?

Mr. CASTON: Yes, that is what I was trying to get at.

Dr. BEADLE: The answer is this: if one application has spread itself over the leaf, and has not been washed off by a subsequent rain, it will; but if rain comes and washes off one application, we have to renew the application so as to have the spores killed. I think our scientists tell us that these spores germinate; they make these spots on the leaf; they go to seed; these spores—or seeds, as I call them—drop upon the soil, are washed into the soil by the showers; get upon the tubers of potatoes, for instances, and there they find the conditions for growing.

Prof CRAIG: My understanding is that the disease grows down through the stalk of the potato, and passes up through the tuber to the stalk.

Dr. BEADLE: Do they take root in the stalk and keep growing downwards until they reach the tuber, or is it that they take root in the stalk and keep multiplying, and so going down?

Prof. CRAIG: Keep multiplying, and so going down.

Mr. D. ALLAN (Galt): I apply a little alum in the water—I have been doing it for 25 years—for fixing the poison on the leaf. I mix it with a little warm water. I put about the same amount of alum as hellebore—an ounce to a pail of water. The hellebore thus applied will stay on my currant bushes all the season.

Mr. HEAD: Does alum affect the leaf?

Mr. D. ALLAN: It may give it a little light color.

Mr. HEAD: You don't think it interferes with its functional capacity in any way?

Mr. D. ALLAN: It never troubled it, to my mind.

Mr. BEALL (Lindsay): I use a little flour paste instead of alum, which I feared might rot the leaves.

The PRESIDENT: We would like to hear any remarks from Mr. James, Deputy Minister of Agriculture.

Mr. JAMES: I have nothing to add to what has been said. I would emphasize what has been mentioned with reference to where these fungi come from. Mr. Caston said that they are present everywhere. That is so, with a modification; but the place in particular where they are is on the tree itself and in its immediate neighborhood—upon the old wood from last year's growth; and hence an early application of the solution upon the tree itself will remove the principal source from which next year's crop of fungus material is going to be derived from.

Mr. TURNER: I think our worthy Secretary made the best point yet, when he advocated early spraying. When the opening bud first appears it is in its most receptive condition. It is very tender; and I think the fungicides used at that time in a mild form, and repeated after that, will answer every purpose. I would advocate a strong solution to be used before the opening bud.

Mr. GOTT (Arkona): We should be careful where and how we plant those trees. I don't think the plum is adapted to all soils. We should reserve our heavy soils for plums. We should plant them in long thin rows. In a close, tight block the fungus will grow in spite of all efforts. The inside of a block will always be more affected than the outside—just exactly the same principle as the peach. The plum diseases can be remedied very largely by other agencies outside of the plum. To make the plum orchard a piggery—to make it a fowl yard, to be used for poultry—these will have a beneficial effect on the growth of the plums.

Mr. JAMES: What was the principal cause of the plum failure this year?

The Secretary: I think the rot was the worst.

Mr. Pattison: The free application of wood ashes and lime is very beneficial to the plum. I have fed them very freely with these substances, and have had absolutely no rot whatever, although I have grown plums for over nine years, many of my trees being full grown when I went there, I never lost a basket from rot. Mr. Cline informs me that where he has fertilized with special fertilizer that is compounded at Smith's Falls and I believe is largely composed of potash, that he has noticed quite a difference in the liability of plums to rot on that account, and in the general immunity of the plums from disease.

Mr. Fisher (Burlington): We didn't have any plum rot this year where I live. We had no plums (laughter.) Last year I noticed that the trees I have growing on an alluvial deposit were very much worse with rot than on other soil.

Mr. James: I think careful experiments ought to be made on the question. Why do the diseases strike certain trees? Are we starving, or partially starving, our trees, and as a consequence getting the trees into such an unhealthy or weak condition that the disease strikes them readily? Can we build up the constitution of the trees so that they will resist the disease?

Mr. Caston: It is a well-known fact that some of the best and thriftiest apple trees are affected by apple-scab. You would think the tree with the greatest vigor would have the greatest ability to resist the attacks of these diseases; but it seems to be the contrary. Although what would bear out the opposite would be this fact, that trees that are not susceptible to the apple scab at all, are particularly hardy, and it is the peculiar hardiness that prevents the attacks of the scab.

Mr. Allan: There is a simple reason for all that. We are seeing more and more every year that throughout our fruit orchards there is a lack in the soil. No doubt you can go into the country and find a young tree badly spotted; but the reason there is exactly the same as in the other instances, the soil lacks some particular substance that is required for the production of perfect fruit. Now, in order to get at this subject and understand it, we must analyse our soil; we must know what those qualities are that must be in the soil for the perfect production of strong, perfect, healthy wood, and the production of healthy, good fruit. When we reach that point, we will have come to a point very much in favor of the fruit-growers of this Province; and come to that point we must, or go down largely in the markets. We have gone down to a considerable extent in the markets of Britain with the apple; and I trace it all back to one point—that our orchards are lacking; the soil is not cultivated and fitted for the crop as it should be. We should look on the orchard as we do any other part of the farm. We should study the orchard's wants; and feed its soil as we do for a crop of wheat or any other roots. (Applause.)

Mr. James: Very frequently we draw erroneous conclusions from simple observation of one circumstance. Here is a man who examines his orchard; and he says: "Those trees are growing on a heavy soil;" and he draws conclusions from that one point—the soil—leaving out entirely the slope of the land, the prevailing wind, whether it is shaded or not; so that in coming to conclusions on those points we have a variety of circumstances to take into consideration. The mere fact that a tree is not thrifty on heavy soil, should not disprove the fact that perhaps those trees would grow on such soils. You may take a variety of soils, they are all clay and they are all heavy, but they may be very different in composition. We should take all the circumstances into consideration before we arrive at any conclusion. Hence a number of experiments carried on at different places all grouped together, will give us better results than the results on one man's farm. We are not very likely to put too much fertilizers on our orchards. It requires something to prove that heavy clay is the material that is needed. I remember years ago hearing Mr. Allan speaking on this subject, in referring to the use of salt in his apple-orchard making the fruit and the trees strong and healthy. Not that there was any benefit in the salt, but it set free other ingredients in the soil.

The Secretary: Some people believe that the yellows can be cured by an appli-

cation of potash; but I believe that is not substantiated. Still in my own orchard I use wood ashes very freely, and I do not think there is any orchard in the section that has had less yellows. True, we have had to pull out trees every year to keep our orchard free from that disease, still I think there has been less yellows in my peach orchard from the fact that we apply wood ashes liberally to these trees. That substantiates to a certain extent the point that has been made, that if we knew just what the trees required we might in the case of many trees protect those trees by feeding them properly. In regard to the remark of one of the members that the plum tree is subject to fungus when highly manured, I would say that it was growing so fast that the young growth of wood was tender, and hence more subject to the spores.

Mr. Morris: While it is necessary to feed the trees and protect the healthy growth, to prevent those diseases that food needs to be balanced. Vegetable manure—barnyard manure may cause such a growth, an unhealthy growth; particularly if the trees are kept cultivated, and that growth made late in the season. In such case, if pears you will always see blight. There is nothing more conducive to blight than to manure your pear trees with barnyard manure and bring them on late. To my mind the best manure for trees in almost any soil—of course you can vary according to the soil—would be a proportion of barnyard manure, wood ashes, and bone dust. I think you would get in those three all that is required. To grow trees with ashes alone, you do not get the strong growth you do with the manure; but it is a healthy growth of wood, is more solid, and a tree grown with lime and wood ashes is much healthier than one grown with wood ashes alone.

The Secretary: You use those elements largely yourself in your nursery?

Mr. Morris: Yes. Unless you have healthy wood your trees will be subject to those diseases that are being discussed.

Mr. Blanchard: Would you use those elements all together?

Mr. Morris: Yes.

Prof. Craig: This matter of getting healthy trees and feeding the soil is a very complicated one. It is necessary to get the trees in the best condition, and to get the trees least liable to these diseases. After that we must come down to spraying. It is proved it is a practicable remedy. It can be applied with paying results to every man who will apply it intelligently and at the right time. It has been pointed out the spray must be put on in a fine film—that is, the protection is given by giving this coating. The way to get that is to put on a fine spray. In spraying we must use a nozzle which will put the spray on in a finely-divided condition, and cover the leaf and the fruit and the whole thing completely. Two nozzles which I have found give me very good results are the Vermorel Improved and the Nixon.

Mr. Hunter: If we were to accomplish that—cover up the leaf so completely that nothing would reach it—that would kill the whole business. The leaf is the lung of the plant, and must take in air.

Prof. Craig: The thickness of the covering on the side would be so thin that it would not interfere with the breathing.

Mr. James: The breathing is chiefly on the under side of the leaf.

ACTS RELATING TO THE SPREAD OF DISEASES.

The Secretary: I have wanted to move a committee to revise the Act with regard to the spread of diseases of trees. In my opinion the present Act is very imperfect indeed, and some proposals were made last year in the Niagara District for a change in the Act, but those were not fully approved of, and the Minister of Agriculture did not think they were just in the right shape to have them brought before the House, and he suggested that we should consider the matter here. It is the duty of every man who has black knot in his place to cut down the trees. That is very well if he will do it. Then

the council is to appoint an inspector to see that this is done; but he has not to do it unless on the petition of fifty ratepayers. That is all right if any one has time to go round and get fifty names; but if the plum knot is ravaging a district and destroying the orchards I think if five men put their names to a paper asking the council to have an inspector appointed, surely it is enough. (Hear, hear.) I don't see why there should not be an inspector anyway. I suppose he gets no pay unless he does some work, and if he does work he ought to be paid.

DELEGATE: I think two names would be quite enough.

The SECRETARY: There are other cumbersome details in this Act. Another is that the inspector has some trouble in carrying it out. I believe he has got to have a written complaint from somebody that the disease exists before acting. Now I think this is too long to wait. I don't see why the inspector should not have eyes of his own, and if he sees yellows in anybody's orchard I do not see why he should not act without waiting for somebody to complain. At the Farmers' Institute meeting held at Grimsby a committee was appointed to co-operate with the Canadian Institnte in Toronto. The Canadian Institute, who are interested in the health of the city, found that peaches with yellows were being offered for sale and they wanted to stamp out the disease, but the matter was not put just in shape to be acted upon. A committee waited on the Government too late in the session. As a matter of fact the Minister of Agriculture wanted to know what the Fruit Growers' Association had done, and he thought the fruit growers of Ontario were the parties to take the matter up. It has been proposed that there be one general inspector the same as there is for foul brood in bees, and that he might work with local inspectors. [The Secretary here read letters from Mr. W. E. Wellington and the Minister of Agriculture.] Of course the work would be mostly done in committee. We cannot discuss it till the matter is properly before us, and I think the committee should bring in some recommendation for some change in this Act, and we might discuss their suggestions and see whether they would meet the case or not. I move that the Chairman or President be asked to name a committee of three to consider this matter.

Mr. A. M. SMITH seconded the motion.

The motion was put and carried, Dr. Beadle suggesting that the President submit the names of committee after noon adjournment.

The Convention then adjourned at twelve o'clock, to resume at two p.m.

SECOND DAY—AFTERNOON SESSION.

The Convention resumed at two p.m.

The PRESIDENT: I am glad to see a large addition to our numbers of this morning. I have also pleasure in announcing that we have with us Mr. O. F. Brand, a member of the State Horticultural Society of Minnesota. We welcome him to our council, and shall be very glad to have him take a seat and join us in our discussions, and in every respect we tender him the courtesies of our Association. I will name the following committees:

ON FRUIT EXHIBIT.—Messrs. Morris, Fonthill; J. D. Stewart, Russeldale; and W. S. Turner, Cornwall.

ON NEW FRUIT.—Prof. Craig, Ottawa; Mr. Hilborn, Leamington; Mr. G. C. Caston, Craighurst.

ON REVISION OF LAWS AS TO BLACK KNOT.—E. D. Smith, Winona; A. W Peart, Burlington; J. Cavers, Galt; J. K. McMichael, Waterford; G. W. Cline, Winona.

Mr. BRAND, in accepting the hospitalities of the Convention, said he had come not so much to afford information as to gather it. Fruit growing began in Minnesota thirty-eight years ago, and he was pleased to say that the oldest apple tree in that State was grown from a seed from an orchard near St. Catharines, and the fruit has been named the Catharine apple. The tree bids fair to reach a hundred years in age. He had been

asked by the President of the Minnesota State Association to find out what the Canadians were doing in originating new fruit; also what success had been met with here in growing Russian apples. He would be glad to listen to the discussions and to afford any information he possessed. (Applause.)

APPLE GROWING.

Mr. Thos. Brooks, of Brantford, read the following paper:

The apple is one of the oldest of fruits. There is an old book with which I have no doubt most of you are familiar in which we find these words: "As the apple tree among the trees of the wood, so is my beloved among the sons,"—something beautiful and lovely—beautiful in its growth, form and appearance, lovely in its fruit and usefulness; such ought the apple tree to be, for apple trees like ourselves are known by their fruit. Plant in the spring, thirty feet apart each way, and do not forget that you are planting a living thing with a life to be fed, protected and cared for if you would have it a thing of beauty and profit. If you do not mean to feed, protect and care for it, do not plant it. Of all the kinds of fruit grown in this country the apple is capable of adapting itself to the greatest variety of soil, climate and surroundings, but under no circumstance must we neglect to feed, care and protect it. "Dig about it and dung it" is still good advice, though it has come down through the centuries. In regard to the apple tree, just remember this, though it is a living thing it cannot roam about for food; it is tied to the spot. Take your cow into the field and give her only twenty feet of rope. She will soon have eaten up all the feed within her reach and have nothing but the ground to stand on, and if you do not supply her wants the pail will soon show the reason. Now I believe this to be the condition of too many of our apple trees: they have little more than the ground to hold them up, and if there was any such thing as their getting out they would follow one another over the fence like so many breachy sheep. General practice has been something like this: For the first ten years the orchard has been made to grow all the grain and roots that could be got from it, thus doing double duty. All right if double fertility has been applied to the trees, but this is too often neglected. Unless the orchard has had very liberal treatment in the way of manure and cultivation the ground will be poorer than when the trees were planted. To me there appears a great similarity between animal and tree vegetable life. For our domestic animals to become strong, healthy and vigorous, they must be fed and cared for in a proper manner. The cow, to give good results at the pail, must have the proper feed in right proportion and quantity, with good care; so the orchard, to give good results in the barrel or cellar, must have its wants supplied to that end from year to year. The animal and its needs, and how and with what to supply them for any desired end, is now pretty well understood. In the case of the orchard these points are rather more obscure and perhaps not so well understood by the average farmer. The suitable treatment of the tree itself, in the way of cleaning and pruning, may in the main be agreed upon as to what is best. And, not to go below the surface of the ground, may there not very easily be some special fertilizer, particularly adapted for the production of fruit, that we do not yet know of? And when we have done our best so far, may there not easily exist some subsoil conditions which will counteract all our best efforts. The only remedy that I know of to cure any unfavorable subsoil conditions, either in the field or orchard, is tile draining. This will greatly benefit a hard clay subsoil, or a cold damp bottom, and in the orchard I believe a good depth, even to four or five feet, to be necessary. If tile drain is too near the surface in the orchard there is danger of the tiles filling with small roots from the trees. I do not wish to be tedious, and of what I have written this is about the sum: First, if the orchard is on hard clay, or cold subsoil, deep and thorough tile draining with perfect outlet; if in grass, which I always think is the nicest condition after the trees are well to bearing, not, however, to be sod-bound, but kept mellow with top dressing, ashes and coarse manure. Next is clean bark and proper pruning—and let me say right here, better prune too little than too much. I have seen most ruinous results from over much pruning. Get the tree

into nice shapely form as to the desired height of the lower limbs from the ground and the direction of leading branches, during the first five years ; after that, under no circumstances ever prune closer than to cut a branch off a limb. Never cut a leading branch off the trunk. Now, sir, I know there is nothing new in this paper. I leave much that might have been said to more able men. Still, I think that success in apple-growing as in many other things, lies in the faithful carrying out of some of the old well-established facts which I have tried to point out. First and last, *feed the apple tree.*"

The SECRETARY : We have had a good paper. Two points, gentlemen who have had experience will heartily approve of. Fertilizing the orchard well is too much neglected in our country. The point about pruning is well put. I think our apple orchards are over-pruned in a great many cases. Trees are made sickly and short-lived because of barbarous butchering. With regard to the distances apart, I think on some rich soils 30 or 32 feet is perhaps a little too close. I have old trees 40 feet apart on good soils where the branches are interlacing.

Mr. JONES (Burford) : A great many contend that orchards should be plowed and worked. By so doing you trim, in a measure, the roots, which are thus said to be trimmed at the top ; but my experience is that isolated trees, where the ground has never been plowed, are the best trees in the orchard. I believe top-dressing an excellent thing if properly done—to cover the whole ground with coarse manure, and frequently to keep the grass down. As to under-draining, where there is gravel and a good deal of sub-soil, orchards do not do well. I have observed the best results in orchards where there is a very deep soil, or, if clay, sub-soil.

Mr. MCMICHAEL (Waterford) : In the last few years my observation has led me to believe that the fungus or spot in the fruit is worse in orchards that have been laid down to grass. I have also known orchards that have been very highly cultivated by fertilizing with barn yard manure, that year after year have raised large crops, with very little fungus on them. It seems the vitality of the tree has, to a certain extent, the power to withstand this trouble if highly fertilized ; and where they are left to grass the trees are not, perhaps, one-fifth as productive as where they are more cultivated.

Mr. CASTON (Craighurst) ; I agree with the last speaker about fertilizing. Of course it stands to reason that a tree must be fed. There is a growth of tree, of leaves, and of fruit. It is claimed that it exhausts a tree just as much to perfect the fruit in a small seed as a large one ; and it might be well to thin out the fruit while small. Where you can work close up to the tree with a plow, never leave it in grass at all. While the orchard is young we grow a crop of roots, provided the fertility of the soil is kept up. In this climate, where we have six or seven weeks of very drouthy weather, cultivate the ground all the time you possibly can ; and keep up fertility if you want healthy trees and good fruit.

Mr. RACE : How do you mean to cultivate? Would you take a crop off the soil?

Mr. CASTON : I would not unless sufficient fertilizing material was put in, so that what is taken away by the crops would not rob the tree. If you cannot find sufficient fertilizing material, do not crop at all, but simply summer-fallow and feed the tree ; and I think it will be found that the trees at forty feet occupy the ground pretty well when they come to maturity, and you will thus make as good use of the ground as you can.

Prof. CRAIG here showed two specimens of fruit picked at the same time—one which had not been thinned, and the other thinned early in the season. The latter was twice as large as the former. The apples were both of the same variety—a Russian called the Ronma. The large one was of poorer color than the small one, but the speaker said he could have secured color as well as size by allowing the large one to remain longer on the tree.

A DELEGATE : Which give the best financial results—the thinned or the unthinned?

Prof. CRAIG : The thinned gave me a larger number of bushels, and I leave it to the fruit growers to say which would bring the most money.

Mr. ALLAN : The big apple.

The SECRETARY : How early would you do this thinning ?

Prof. CRAIG : I should say just after the first apples are fallen from the effects of the codling moth.

The SECRETARY : Just about the time we do our spraying ?

Prof. CRAIG : A little after.

A DELEGATE : How old was the tree from which these specimens came ?

Prof. CRAIG : It was six years planted.

The PRESIDENT suggested calling for the paper, "Fruit Growing on Clay soils," by Mr. F. G. H. Pattison, of Grimsby, and discussing it in connection with the paper just read.

FRUIT GROWING ON CLAY SOILS.

For a long time it was supposed, at all events in the section of country in which I am situated, that fruit would not succeed except on a light soil, preferably a sandy one. Consequently, those who had the temerity to plant fruit on the clay were laughed at by their neighbors, as being likely to have nothing but their labor for their pains. Even now the same impression prevails largely, especially amongst those who own farms of sandy texture.

To aid, then, in dispelling this idea is one of the objects of this paper From a personal experience in the heart of one of the best known fruit sections in Ontario extending over eight years, and from observation of the operations of others over a longer period, I have come to a conclusion slightly different from the foregoing, and I ask you to lend me your ears for a short time that I may present the other side of the case to your notice. Now, in my experience clay soil, and especially high red clay, is peculiarly well adapted to growing profitably the following kinds of fruit, namely ; grapes, pears, plums, apples, quinces, red and black currants. Peaches and cherries will also do fairly well ; the former must, however, be given exceptionally good attention and cultivation, when they will bear fruit some seasons when there is little or none on the sand, and the quality will be very fine. Still for profit clay does not compare with sand in the case of the peach, which naturally loves a light warm soil. Small fruits, also, with the exception of red and black currants, mentioned above, cannot be profitably grown upon clay to any great extent, although an excellent supply for home use can be easily obtained. But let us examine into those fruits that I have already said *can* be profitably grown there. To begin with grapes. For them I claim the following advantages on clay soil : Firstly, earliness. On the high red clay most varieties will ripen from 10 days to 3 weeks earlier than on sand in the same locality. This advantage is of great importance from a pecuniary point of view, especially in an early section, frequently from this cause alone doubling the profits to be obtained from the vineyard. Secondly, healthiness. Grapes on clay are not nearly so subject to diseases, especially rot and mildew. Thirdly, the quality of the fruit is vastly superior. So much is this the case, that the same fruit grown on clay is like a totally different and superior variety compared to that grown upon sand, although the name be the same. To give you an example from my own experience, which is the more valuable as it was purely voluntary and quite unbiassed. A year or more ago a young friend of mine who had been staying with me for a considerable time and had been accustomed to eat my grapes grown upon a clay soil, expressed a wish to go through some of the large vineyards in my neighborhood upon the sand. It was a fine day in the early part of October, and as we walked through the vineyards the grapes hung in tempting clusters, perfectly ripe. Naturally enough, he sampled them as he went along, but after doing so his face did not express the satisfaction one might have looked for under the circumstances. Instead of which he said, "whatever is the matter with these grapes ? they have no flavor." I suggested that it

might be the variety, so he tried other varieties ; but with the same invariable result—no flavor. It was quite true, for I have no hesitation in saying that grapes grown upon sand are insipid, watery, flavorless productions, and are as much inferior to those grown upon clay as those grown out of doors are inferior to the hot house varieties in a cool climate.

I am informed by a neighbor who is in the habit of attending the Hamilton market, that the dealers and buyers there eagerly seek for grapes grown upon a clay soil, the effect of which is that it is hard to find them grown upon any other soil—at all events when they have reached market. I am also informed that wine makers, both at Hamilton and at St. Catharines, vastly prefer grapes from the clay, indeed, will not purchase any others if they can help it.

Now we come to pears, and here again the quality and flavor are much superior, some varieties almost flavorless in sand, being excellent on clay, *i.e.*, Flemish Beauty. Clapp's Favorite, too, which rots at the core if allowed to hang upon the tree on sandy soil will hang for weeks upon the clay without suffering deterioration. The trees are healthier, bear as well and are much less subject to blight, that fell enemy of the pear grower.

Plums revel in a clay soil ; they bear early, last long, and produce abundant crops of excellent quality, often bearing heavily in seasons when there are none upon the sand. They are also less subject to disease and to the curculio.

Apples do excellently upon a high clay ; they come into bearing early and do not feel climatic changes so much as on the sand. The fruit is of finer quality and keeps better. The trees as a rule bear more fruit and less wood and do not require so much feeding.

Quinces will do well on clay if given good cultivation and a moderate supply of manure ; also red and black currants.

Yet other two points in favor of the high clay and I have done.

Firstly, it does not require underdraining to produce fruit profitably, of excellent quality. This is frequently a very important item in the expense of putting out fruit. One of our prominent members declared at a meeting of the Farmers' Institute, held at Grimsby last winter, that it was quite useless to underdrain the high red clay. While not going so far as this, I am of opinion that it will make so little difference as not to be worth doing.

Secondly, the fertility of the clay for fruit is not easily exhausted, and can be kept up for an indefinite period with a very moderate supply of manure. Now, on sand it is feed, feed, feed all the time if you wish to obtain the two requisites, viz., quantity and quality. I am convinced that the reason a great many orchards do not bear upon the sand is from no other cause but soil-exhaustion. Now, the clay (like the Scotchman, of whom it was said on some one asking if he kept the Sabbath, Yes, he keeps the Sabbath, and everything else he can lay his hands on) will retain all the fertility you can supply to it,, and will unlock it gradually.

Summing up, I think we may safely say that the fruits I have mentioned viz., grapes, pears, plums, apples, quinces and red and black currants, can not only be profitably grown upon clay, but will excel those grown upon almost any other soil.

Mr. Allan (Goderich) : I can't agree with a great deal that Mr. Pattison has said. I believe in clay ; I believe in clay loam ; I do not believe that fruit culture can be successfully prosecuted upon a heavy clay, and I take it when he speaks of clay it is pure clay or a heavy clay, and not a clay loam, without a thorough system of underdraining upon such soil. Under-drainage is important on almost any soil—even in gravelly sub-soils, which are often springy, where the top soil is mellow and easily penetrated, so that the feeding roots reach substances that are not altogether beneficial to the formation of perfect wood and fruit. As to quality, there is unquestionably a difference in some

fruits in proportion to the soils they are grown upon; but that difference means the difference in the substances in that soil that are required to produce first-class fruit. If there is sufficient lime and iron, and substances of that sort, you will get a high color and a high flavor—in other words, the flavor is brought out better. I believe in a mixture of manures, because in the mixture we find the substances that are required for the purposes we are after. You will find the highest possible color and flavor in a particular variety, for instance, where you place some salt, some sulphate of iron, and a certain quantity of potash; whereas that same variety grown a few feet distant, under slightly different circumstances, will not grade as high, because the flavor is not brought out as well. My experience is that apples grown in a southern section will not, after shipment, compare in any way in a foreign market with apples grown in the far north and east; and if I were in the southern district I would devote myself to those fruits that can reach the highest perfection for those markets that they were to be shipped to.

Mr. Orr (Winona): I have taken nearly all the apple trees out—both clay and sand—and made firewood of them. As to underdrainage of clay, the water never finds its way down to the drains. I have had experience growing pears on clay; but they load so heavily that we do not get size.

The Secretary: How about Clapp's Favorite getting rotten in the heart?

Mr. Orr: We have had no difficulty with the Clapp's Favorite on that score.

Mr. Hunter: I have had Clapp's Favorite rotten on the outside and sound in the heart.

Mr. Race: Mr. Allan comes from Goderich, which is on a sand belt about twenty-two feet in width. The apple exhibit around Goderich this last fall was the largest and finest I saw in the province. The next finest was at the town of Clinton, only a few miles east of that. These were very much larger and finer than the exhibit at London, and quite equal, if not superior, to the one at Toronto. On enquiring in these and other places I found that the very finest specimens were grown upon a sandy loam, or else a clay-loam underdrained; and in many cases where we found samples which came in competition with those, I found that they were grown on clay which was not underdrained. So I concluded that last year the sandy loam had been the very best, and the second quality was produced on a clay loam underdrained. There are two apples that have come into notice during the last three or four years—the Wealthy and the Ontario. The finest specimens I saw of these anywhere this season were at Stratford, cultivated by Mr. Dempsey.

Mr. Allen: It was later in the season when you saw the specimens there?

Mr. Race: It was about two weeks later than I saw at Goderich.

Mr. Dempsey (Stratford): Those that Mr. Race speaks of were grown on blue-clay subsoil. It was highly cultivated, well manured, and a good deal of ashes on it.

Mr. Hilborn: I think that elevation has something to do with it; but I find that sandy soil produces fruit of a better quality, though very often not quite so large. Small fruit crops like strawberries are of better quality on sandy soil—they get more sunshine and heat.

Mr. Morris: I think the question of clay or sandy soil depends altogether on what the clay soil is and what the sandy soil is. There is much clay soil that can be thoroughly tile-drained; and I think that kind of soil is as good as any we can get for fruit. There is a good deal of sandy soil that is of a damp, sour nature, that is not fit for fruit. That which is sandy loam and dry grows good fruit. I think Mr. Dempsey has given us the secret of those fine Stratford apples by saying that he used much ashes. Ashes are made from wood, and when fed to land turns to wood—it seems to be a natural manure, and makes a healthy growth of wood. Perhaps many, like myself, have orchards that we do not like to dig up, and we would like to know what varieties we can grow with advantage.

Mr. Pattison: I did not for a moment purpose to say that all clay soil does not

require underdraining. I said the high red clay did not require underdraining; and that is so. It may rain for weeks and weeks, and if you dig down three and a-half feet into the red clay you will never find a drop of water there. It is true that underdraining does render the land slightly more porous where the underdrains are not laid too deep; but it is a question whether it pays to do it. High red clay requires no underdrainage for apples or any other fruit. As to quality, my experience is that it will bear shipping, and will keep long, and has a very fine color. There is no comparison in the results between clay and sand in the same locality. As to earliness of crops in our section, the red clay is from ten days to two weeks earlier than the light soil in almost any variety.

Mr. PETTIT (Winona): Coming from Mr. Pattison's neighborhood, I cannot agree with that statement. No doubt you can get them earlier, but there is a great falling off in quantity.

Mr. CASTON: The term "sand" is quite indefinite. A sandy loam is the best for the most fruits. Next to that we like a clay loam. The best soil for the apple is the light loam. I think Mr Pattison's description may be accounted for from the fact that the locality in which he is has been settled for a long time, and had been wrought for a long time with grain before they turned their attention to fruit; and I think the clay there is very probably an alluvial deposit. I have no doubt that Lake Ontario was up to the top of the mountain at one time.

The PRESIDENT: There is another question that would come in here very well for discussion—one of the topics on the programme: "What is the proper way of caring for an orchard after it begins to bear fruit?"

Mr. THOS. A. GOOD (Brantford): The fruit growers of this section have reason to feel gratified for the information that is being imparted to them. I think the fruit growers in the Dominion understand fruit culture better than any in the world. We have various soils in this county, but none that water will not penetrate. I should not like to grow fruit where water would lie on the surface. In our part of the country we have the best success with Famense apples, and I think with cherries on clay land. The next best land is clay loam; and the worst for apples, and pears especially, is what we call sharp sand. It is almost like building sand. If you go down two or three feet you would get sand fit for making mortar; whereas a few rods off you get a soil entirely different. In some sections that sharp sand is no good for fruit at all, except small fruits, such as currants and strawberries—and they can be grown to perfection. An orchard on this sharp sand, within half-a mile of my house, has not produced in sixteen or seventeen years more than sixteen or seventeen barrels in three years. It has been our plan to let an orchard run to grass after the trees got to bearing size. A neighbor of mine who has made his orchard successful attributes it to the thorough cultivation he gives it. Another orchard near me on a sandy loam, well sheltered by a row of trees along the west side, which thoroughly protects it from the west winds, has been a success the last two years, but orchards near it have not been successful. I would like to know why you consider wind-breaks in such a season as this a protection to the apple. In my own and other orchards there was hardly a perfect apple, while in the shaded orchards they were nearly all first-class, and brought $1.60 a barrel, having been sold as Extra No. 1 apples. The windbreak was the only thing I could see to account for the difference. I cannot agree with the statement that poverty of the soil causes scab. We have raised the snow-apples to perfection for years. Last year they were very good, and this year they were perfectly worthless. If it was poverty of the soil, how could you account for that? There must be some other cause. The Baldwin and Northern Spy and Greening were also cracked and scabby, whereas in those former years they were almost perfect.

Mr. A. McD. ALLAN: The impression that poverty of the soil causes fungus is no correct. Poverty of the soil has a great deal to do with any disease, because the "constitution" of a tree—so to speak—grown in an impoverished soil cannot be strong enough to bear the burden of a crop of fruit, which will weaken a tree. There must be sufficient food to provide for the life of the tree, and also for the bearing of the fruit and for the production of healthy and strong wood. You are thus growing two crops on

that soil; and many people will attempt to grow a third crop—of grain—and thus rob the soil of its vitality. Whether you cultivate or not, after trees come into bearing you must feed, and you must subsoil sufficient to allow the manures to penetrate the soil. If you allow the top sod to become consolidated you must adopt some measures to allow the manure to penetrate it. Never cultivate your orchard after midsummer; and the manuring must be done before. Follow nature as closely as possible—and nature provides a top-dressing under the soil of the trees in the fall of the year; and then when the rains have percolated and worked that manure into the soil I carry on cultivation there very lightly. I planted in the first place in a nice friable soil, underdrained so that the roots would strike deeper than they otherwise might, so that I have the roots pretty well out of the control of the plow in cultivating—though I use a cultivator in cultivating. I would stop a little before mid-summer so as to allow the growth of the season to thoroughly ripen before winter comes in.

APPLE SCAB.

The topic was then introduced for discussion: "What causes the apple scab? Can it be prevented?"

The Secretary: This is a case illustrating the great value of science in horticulture or any other branch of agriculture. Not long ago a great many of us engaged in apple-growing in Ontario were inclined to give up growing apples on account of the apple scab; but now we know that it is a little fungus, and that it lives not only on the fruit but also on the leaves; that it is propagated by little spores that correspond to seeds, and that they lie upon the apple or upon the leaf, and very soon begin to germinate and produce these little spots. You will have observed these spots on the leaves, not knowing that they were on the apple. You will also have observed that the foliage on the trees ripens and drops much earlier than it should. It is all caused by the apple scab, which causes it to weaken and mature and grow out of shape and fall, and so takes away from the vitality of the tree, causes the apples to grow mis-shaped and small and worthless for market. We find that the apple scab can be treated. I would suggest that every fruit grower in the room make up his mind to apply fungicide for the apple scab. Let him apply it before the foliage appears at all. Try first: sulphate of copper—a pound to twenty five gallons of water; apply it so that every part is covered, any time before the foliage is expanded; you might almost say in the winter, but anyway in the early spring. Then try ammoniacal carbonate of copper as soon as the bloom appears:—carbonate of copper, five ounces; ammonia, three pints; water, forty-five gallons. I think if we would faithfully try this experiment next spring we would have something to talk about a year from now.

Prof. Craig: A year ago the Department at Ottawa issued a bulletin giving instructions for the manufacture of this carbonate. It is somewhat expensive when bought from the druggists, and this prevents its general use This bulletin will be sent to any one who writes to the Horticultural Department, Ottawa.

Mr. W. S. Turner (Cornwall):—I received a bulletin from Mr. Craig, and acted on it, and found considerable benefit from spraying. I had finer fruit than ever before, with the exception of one tree, which shows the necessity of planting thirty or forty feet apart, one Wallbridge tree interlaced with a Ben Davis. The spot was worse in that part than in any part of my orchard, showing that interlacing tends to make the disease worse.

The President: I would like to vouch for Mr. Turner's fruit. I have several jars of it put up for the World's Fair—very superior in every respect.

Mr. Fisher: Has the presence of a windbreak anything to do with freedom from scab?

The Secretary: I cannot see any connection between windbreak and scab.

Mr. Fisher: A windbreak would be injurious rather than beneficial.

Mr. Allan (Goderich) : The windbreak as generally grown is a closely planted hedge. Now, you want something that will allow the wind to thoroughly run through the trees, but merely break the force of it. People make a great mistake in planting too close. I would plant windbreak trees thirty or forty feet apart, so that there is no possibility of them ever interlacing ; plant in a double row, which would make them practically twenty feet apart.

Mr. Good : You can carry a lighted match almost any time of the year on the lee side of the windbreak I spoke of, and there was less scab in that orchard than in any one I know.

Mr. John J. Fraser : Mr. Good and I are, comparatively speaking, neighbors. We have a windbreak on the west and north, of evergreens planted about twelve feet apart, grown to the height of thirty feet or upwards, and I have noticed that for many years past the apples in that orchard have been very much subject to scab—much more so than in the other orchards we have. I have always attributed it to the closeness of the windbreak, which prevented the free circulation of air. There was not a bushel of apples in that orchard last year that was free from the scab.

Mr. Morris : The roots of those trees thirty feet high will extend through the ground the same distance, and come in contact with the roots of the fruit trees in that distance, and will rob the ground of food which those trees should have had ; and that will tend to bring about the scab. I would not have evergreens for windbreak, but rather something like European larch, which the wind will pass through.

Mr. Caston : In our part of the country windbreaks are beneficial. I would have them on north and west sides if possible. I have a board fence fourteen feet high. I built it when I planted out the trees, and at the same time I planted a row of evergreens, to be coming on while the orchard was growing, so that when the fence got old I would have the evergreens. The winter of 1884-5 was very severe—averaging colder than it had for thirty years—and I lost between sixty and one hundred trees. The more exposed portion of the orchard suffered most severely, and right in the neighborhood of that fence they were scathless. A neighbor of mine had no windbreak—because it was an axiom with us that we ought to have a northern exposure—and his orchard was entirely ruined. I would certainly have a windbreak fourteen or twenty feet high, whether of trees or fence. I think in close, foggy weather the fungus gets in its work.

Mr. Gott : Windbreaks are good. The finest plot I ever saw was five acres entirely surrounded by white pine, about thirty feet high—the branches interlacing—planted about ten feet apart. I believe the tender fruits such as plums, fine peaches, and apricots, can be grown within a windbreak of that kind. I had a friend who had perfect apples, and who had a forest along the whole northern part of his orchard.

Mr. Brand was asked by Prof. Craig to speak about windbreaks. He said : We have very high windstorms, and frequently tornadoes, in July and August, and we have found it necessary to protect with windbreaks our main orchards—which are chiefly composed of Duchess of Oldenburg, which blows off very easily—to ensure a good crop, but as to the health of trees I never could see that they were beneficial, but rather objectionable generally. The largest, best and most productive trees that I have stand a long distance from any windbreak ; so also do the best in the State—and I have seen as many trees in our State as any other man in it. I have been planting a windbreak of European larch. I have windbreaks of evergreens, which I find of a great benefit in catching snow from five to seven feet deep, and thus protecting tender trees through severe winters like that of 1884, when all our Wealthies were destroyed, except such as stood in deep snow. With regard to the scab, Prof. Goff, Professor of Horticulture in Wisconsin, succeeded, by spraying a Fameuse tree three or four times during the season, in producing seventy-five per cent. of perfect apples, as against twenty-two per cent. on trees that were not sprayed.

Prof. Craig : On what sides are the windbreaks planted ?

Mr. Brand : West and south, our most damaging winds coming thence.

Mr. JOHN LITTLE (Granton): Forty years ago I planted a windbreak of twenty rods on the west and the north, and it became of great benefit to me since I became a strawberry man. On the north side the snow remained there probably two weeks longer than any other place.

Mr. STEWART (Russeldale): Many years ago I planted out a young orchard, and I planted a row of Norway spruces along the north, east and west, leaving the south free, and I have never had reason to regret it. I had the best fruit, and the freest from scab, and the largest crop of pears in that enclosure, of any in my place.

Mr. HOWELL (Brantford): My neighbor on the west has a windbreak of natural pine on the north and east, which makes a windbreak on the west of mine, and I have also a windbreak on the south. My neighbor had the best crop of apples, and mine was a poor sample except on the road right next to the evergreens on the south. I think in the last two years his orchard was better than mine. Mine has been used as a hen and hog pasture, and his has been seeded down with peas and oats.

Mr. PATTISON: In the more northern sections, where they suffer from low temperatures, a windbreak is valuable; but in the southern section I should be inclined to doubt its efficacy at all, except such a windbreak as would lessen the force of the fall winds, as larch or Lombardy poplar.

Mr. HUNTER: To prevent the robbing of the orchard by windbreak trees I plow furrows as deep as possible not far from the shade trees, and then dig down with a spade and cut off all the roots leading towards the orchard, as deep as I can find them. This repeated at intervals five or six years apart will prevent injury by robbing.

Mr. FISHER: There are two opinions about the usefulness of windbreaks. The Robertson pear orchard at Oakville, which generally bears 300 or 400 barrels of first-class fruit every year, was predisposed to scab this year, and the crop was only 30 or 40 barrels of good fruit. It is surrounded by a very close hedge, and there are, I think, two windbreaks running through the orchard. I believe the presence of those windbreaks had a great deal to do with the large amount of scab. I had an unusually heavy crop of pears, though somewhat scabby; but my orchards are entirely unprotected.

Mr. THOS. IVEY introduced the topic: "What is the proper method of caring for an orchard from the time the trees are planted until they begin to bear?" It is said we learn as much by our failures as by our successes. Five years ago I planted 100 plum, 100 pear, 50 cherry and 75 apples. The ground was clay loam with gravel subsoil. I dug deeply. I made large holes and put good soil around the roots in planting, and the poorer soil dug out of the hole was thrown in on top, I got good growth of trees all around. My cultivation was well kept up during the five years. I manured heavily—put on from 50 to 75 one-horse loads of manure each year—and kept the ground well cultivated, and grew garden truck between the trees. The trees have been admired by my neighbors, and they have been looked upon as a success; but this spring I found that 50 of those trees were totally dead. I have imagined there must have been something wrong in the nursery care of those trees before they were planted. I have lost a number of plums which grew to a large size.

BEE-KEEPING AND FRUIT GROWING AS A UNITED INDUSTRY.

Mr. R. HOLTERMANN (Brantford): The impression has gone abroad that bee-keeping requires very little attention, experience, etc. The reasons for this are various. In the old system we had the box hive, which required very little attention. Men who attend conventions are not lured into business that does not require care and knowledge. The business you want is a business that requires experience and knowledge and care—which bee-keeping does. Of course we can go into business in a small way, and read up, and as our experience increases we can increase our colonies. Fruit growing and bee-keeping are businesses which for various reasons can be well combined. You

know there are men making failure of fruit growing every day, and you know also there are men who are making money at it; in fact I believe that the dairymen and the fruit-growers—that is the specialists—are the men who are making more money to-day in Canada than is made in any other branch of farming. With bee-keeping it is the same. We find men on every side who are failing in bee-keeping—who are giving it up, and who have lost money; and on the other hand we find men who are making a fair living and, perhaps a little more, at it. I have 95 colonies of bees in my cellar. Any fruit grower who has a good cellar can winter his bees successfully in it. For the last two years I have kept careful account of my bees. Every item has been charged—the labor in the yard being counted at the rate of $1.25 a day—and every sale has been credited; and the result is that the net profits amount to the value of the present stock of the yard—which is probably $700 or $800. Now, that is a fair investment. Of course business has been pushed in every possible way. We have attended shows in Toronto and Montreal; and we have counted the prize-money by crediting the apiary with that honey at the highest market price; and any prize-money went towards expenses at the exhibition, which we considered would just about be covered by the prize-money. There are certain seasons when the bee-keeper is very busy, while during the winter season he has very little to do. After a man has all the hives he requires, his combs, his extracting apparatus, there is very little to do. The bees require constant observation during the winter, and now and then a few minutes' work. Prof. Panton will tell you the necessity for the bees in fertilizing. The primary object of the bee is not to gather honey, but for the purpose of fertilizing flowers. In damp seasons the time for fertilizing is limited; and by having these fertilizing agents we are able to secure fertilization in greater abundance that otherwise. Further: we know that by securing pollen from one flower to fertilize another we are liable to secure a better fruit. For instance we know that in the apple we require five distinct fertilizations to give us a perfect apple; and if we have bees to fertilize the flower we are likely to have a larger percentage of perfect apples. Of course the locality has a great deal to do with it. A good locality requires flowers in the spring of the year for the purpose of giving the bees pollen and honey; and they use that for feeding the larvæ and producing bees which will eventually give a surplus. Willow—and, later on, fruit-blossom—is very important for this purpose; but we very rarely secure any surplus before clover. Therefore the danger of bees carrying to the hive poison from the spraying is very little, for we secure no surplus at that season of the year; and should poisoned honey be carried to the hive there is no danger of the consumer getting it upon the table. I have found by observation that if we can get from three to four miles from the lake, our seasons are prolonged; the blossoms will open earlier and close later; therefore that is a good locality. Of course a great many of us are content to be where blossoms all open at the same time within the radius that bees fly. Alsike clover is a very good honey plant—in fact I know of no better. If we can get high and light land it gives us the advantage of having blossoms early and late. If we can add to that Golden-Rod and Boneset, so much the better; but they produce an inferior honey yield only once in a long while, and hence I do not consider them of any special importance. The only time I can see when bee-keeping would interfere with fruit-growing would be berry-picking time. We are very busy with the bees during the latter part of June, and sometimes the whole of that month. The balance of the work required with the bees could be left off till some other time; and I think the fruit growing work could be put off at other times—that is the preparing for market, and work of that kind—winter work. When it comes to marketing the two can be combined very well. You have to take fruit to market; and you can ship your honey to the same commission man that you ship your fruit to. For these reasons I think bee-keeping and fruit growing can be combined very well. Those who already have too much to do should not go into bee-keeping. I find a great many in the country fail because they attempt too much. Every fruit grower should keep a few colonies; but the beginner should not start with many. If there are other men around you who keep bees, there is no object in your keeping them for fertilizing your flowers. Unless you are prepared to take an interest in the bees, don't go into the business. (Applause.)

Mr. Gott (Arkona): A friend of mine undertook to combine these industries. He

attended to his bees very freely; seemed to get along with them very nicely for a time, but then fruit was suffering. He had to leave his bees and attend to the fruit. While he was attending to the fruit the bees would fly away. After awhile the moth would begin to enter into some of the hives and play havoc with them. The bees after a short time went into winter quarters very weak. They came out weak and silent. They wouldn't combine. These two things will not combine except on a small scale; but to make a profit so as to be recommended to us as fruit-growers is a very doubtful question.

Mr. HOLTERMANN: I am not anxious to convert any of you into bee-keepers. I was asked to present the question and have done so. We know there are a great many men in the country who are combining fruit-growing with other things. They have a small farm, or they have cows, pigs and so on; and why not bees under those circumstances? Of course if a man keeps nothing but fruit, and devotes his entire attention to it, he is all right—there is nothing like that kind of a man; he will advance the fruit-growing industry and will be a successful man himself. The farming community is suffering from combining too many things. If you are so situated that you can keep bees with advantage, keep them; if not, keep out of the business. As far as the moth is concerned, our good friend must have been behind the times—he must have had black bees—because if he had Italian bees I guarantee they will not trouble him.

Mr. CASTON: How about the market for honey? Is it likely to continue?—a sufficient demand at a fair price?

Mr. HOLTERMANN: We find no difficulty in marketing our honey and that of a good many others. The price has depreciated in the last two years, but it is like everything else—like the fanning-mill which sold for $30 two years ago, and is selling for $15 to-day. Bee-keepers must understand how to produce for less money. I think in the neighborhood of Brantford honey is selling at 12½ cents a pound, and 9 pounds for $1, and in exceptional instances I believe 10 pounds for $1. Whether the depreciation in the price of honey will remain I do not know.

Mr. CASTON: You don't call that a bad price?

Mr. HOLTERMANN: That is not a bad price. Of course if a man wholesales he has to sell for less. Bee-keepers feel that they are not getting what they should; and a good many bee-keepers feel that others should not go into the business.

The SECRETARY: Our busy season begins when the busy season begins with the bee-keeper—about the berry season. How long does your busy season last?

Mr. HOLTERMANN: To the middle or end of July. As to swarming. I have not a great deal of sympathy with people who have to hive a great many swarms. For the last six or seven years I have not had more than an average of twenty per cent. of swarms. If you manage your bees rightly, that is, shade them, ventilate them, and so on, the swarming will be reduced to a minimum, and you will also get more honey There is no money in selling bees at the present time. In the spring of the year, if you are posted in the business, you can buy for $5 a colony, and thus save the risk of wintering. A friend of mine, Mr. C. A. Post, of Murray, has 346 colonies of bees and never has a man to watch the swarm at all.

Mr. MORRIS: I believe the bee-keepers have got a little the start of the fruit-growers by having a law passed that the fruit-growers will not be allowed to spray trees while flowers are in blossom. Now it is well known that the bees not only carry pollen and produce fertilisation, but also carry the disease known as "yellows" in peaches, and spread them. Now shouldn't we take a leaf out of the bee-keepers' book, and have a law passed that bees shall not carry the yellows?—(laughter)—or if they do make their owners responsible, because they do it.

Mr. HOLTERMANN: I think the fruit-growers have for many years had the start of the bee-keepers, and I believe they have the start of them yet. Of course I am not prepared to say whether bees transmit poison or not, and I have an idea that it is altogether likely; no one else is prepared to say whether that is the case or not. I would not care

to enter into that discussion about the law being passed. My own opinion is that it is in the interest of the combined industry.

Mr. CASTON: I know a man in our neighborhood who began by hunting up trees; he got the bees in the woods, and now he makes an income of about $500 every year clear from his summer's work with the bees, and in the winter-time he is free to go at something else. He does not work as hard as the farmers do, or as hard as I do; and he has frequently advised me to keep a few colonies of bees in connection with my work. I am very glad when I see my neighbor's bees among the blossoms, and I would be sorry to see anything that would reduce the number of bees in the country, because I recognize their usefulness. I am waiting till the bee-keepers produce a bee that has no sting. (Laughter).

Mr. LITTLE asked whether bees would fertilize strawberries?

Mr. L. J. MULLET (Waterdown): Bees work very little on strawberries. Raspberries they derive a great deal of honey from. I think they are a great benefit as regards strawberries; but the gentleman would have to have perfect flowering plants to fertilize his strawberries with. Some fruit-growers claim that bees injure peaches and grapes. That is, I believe, caused by hornets, whose jaws or mandibles are so placed for sawing. The bee has not that power to puncture the skin of the grape or peach.

Mr. HOLTERMANN: There has been a great deal of experimenting done in that direction, and I think it has been conclusively shown that the honey bee's mandibles are not sufficiently strong to puncture the skin of the grape or peach; but if a grape or a peach should break open or be bruised, then the bee will take the juice.

Mr. ALLAN (Goderich): I do not see anything injurious to fruit-growers in the Act forbidding them to spray with poisonous substances while the bloom is on; for a fruit-grower who understands his business will not spray then—there is no object in doing so, but quite the contrary; and it should be the object of every fruit-grower to take good care not to spray at a time when he would injure the bees, because the bees are among the best friends we have. I have noticed bees feeding upon the pieces of the grapes and pears; but I believe they never do so except when the skin of the fruit has been broken.

Mr. PATTISON: My neighbor on the west is the largest bee-keeper in our section of the country, and is distinctly making a success of it; and he also grows a very considerable amount of fruit, as well as attending to a farm of 125 acres of arable land. His fruit-growing and bee-keeping are decidedly a success—especially the bee-keeping. I see no reason why the two could not be combined; the only thing would be not to grow small fruits. My neighbor confines himself to grapes, pears, plums and apples.

Mr. HOLTERMANN: My father-in-law, S. T. Pettit, of Belmont, commenced with 69 colonies, and secured 8,000 pounds this year; and his increase he counts as nothing. I have known years in which he made as much as $1,200 on honey alone.

REPRESENTATION ON AGRICULTURAL COLLEGE BOARD.

Mr. CAVERS (Galt) gave notice of motion as to representation of this Association on the Advisory Committee of the Agricultural College at Guelph. [See discussion further on.]

DISEASES IN FRUIT TREES.

Mr. E. D. SMITH, Chairman of the Committee, appointed to consider amendments to the Act relating to black-knot in trees, reported as follows:

CHAPTER 202, REVISED STATUTES OF ONTARIO.

Whereas the "Act to prevent the Spread of Noxious Weeds and Diseases affecting Fruit Trees,' has been found inoperative and practically a dead letter, your Committee begs leave to report the following amendments they would suggest :—

To amend sec. 2, clause 3, to read as follows :—"Such council may, at its first meeting each year and shall on being petitioned by *five* ratepayers appoint at least one inspector to enforce the provisions of the Act, his appointment to be made at the first meeting of the council after such petition has been presented, and his salary or remuneration be determined and paid by the council; and in case a vacancy shall occur in the office of inspector, it shall be the duty of the council to fill the same forthwith.

To amend sec. 8 to read, "It shall be the duty of the inspector to give or cause to be given notice in writing to the owner or occupant of any land containing fruit trees affected with yellows or black-knot, requiring him within five days from the receipt of the notice to deal with such trees in the manner provided by sections 2 and 3 of this Act.

Your Committee begs leave to suggest that your Association respectfully recommends to the Hon. the Minister of Agriculture, the appointment of a Provincial Inspector, whose duties shall be to superintend the carrying out of the provisions of this Act by the local inspector in so far as it relates to the black-knot and yellows, said Provincial Inspector to be paid by the Local Government.

Mr. SMITH: We could not as a Fruit Growers' Association very well recommend the appointment of this inspector whose duty it should be to look after noxious weeds, and that is why we suggested the co-operation of the Farmers' Institute, so that one Inspector might look after both interests.

Mr. JAMES: One difficulty arises at the very outset: How are you going to compel councils to do it that have no interest at the start? Suppose the city of Brantford says: "That is all nonsense; we won't have anything to do with that;" what are you going to do then? I doubt very much the advisability of connecting this with the weed extermination. You can handle the one, but you cannot the other, simply because they are linked together in one statute it does not necessarily follow that the amendment should cover the whole statute. I think the end will be better accomplished by attempting less. One officer for each municipality means over 700 officers in the Province. Members of parliament are going to vote upon that as they think it would be voted upon in their own municipality. Do you think you can get a majority of the members of the House to vote on that, compelling the councils to appoint that officer? They would say: "Black-knot is prevalent principally in certain sections of the Province. They are the ones who want this enactment."

Mr. SMITH: Have the Provincial authorities not power to compel the councils to do this?

A DELEGATE: It is permissive—not compulsory.

Mr. JAMES: Could one man cover the Province as regards black-knot and weeds? We find it cannot be done with regard to bees. I should think the inspector of fruit trees alone would be sufficient.

Mr. ORR: We have a law on our statute books with respect to noxious weeds, and they cannot be controlled. I have 10 or 12 acres that it is utterly impossible to kill all the weeds out of. The inspector should have power to do the work at once—to go into an orchard and cut the trees down, not ask the owner of the property to do it.

Mr. SMITH: We discussed that, and suggested that the decision of the inspector should be subject to appeal by the owner, in case the inspector might make a mistake.

Mr. ORR: The noxious weed law is a dead letter now. Every pathmaster is required to do it now, and it can't be done.

A DELEGATE: Is there a municipality in the Province that the proposed suggestion would not benefit? Is there a country municipality that produces no weeds; or is there a city or town where fruit trees are not grown? If there is, our suggestion would not apply; but there is no municipality in the country in which we cannot find either weeds or fruit trees.

Mr. JAMES: Suppose an inspector were appointed in a certain township; could he go through the entire township and have all the weeds cut down, and the black-knot trees cut down, and send his bill to the council?

Mr. SMITH: No; the expenses are to come off the party whose trees are cut down. We recommended that the owner be compelled to cut the trees down.

A DELEGATE: In the Central Farmers' Institute that question of weeds has come up time and again; and I doubt if they would do any more in that direction; but in regard to black knot they would co-operate.

Mr. M. PETTIT: The original act to prevent the spread of the yellows was a good act, and very easily put in force; and I think if we asked that this be added to that act it would work. I see no necessity for asking for a Provincial inspector with that.

Mr. SMITH: Under the present provisions of the Act there is a penalty of $20 for every inspector who does not do his duty; but in fact our inspectors do not do their duty, because there is no one to look after them.

Mr. PEART: The inspectors are well known in their own localities, and they are loth to make complaint.

The SECRETARY: I think there should be some one to whom people can appeal. If there is, fruit growers will take advantage of it; they will appeal to this Provincial inspector, and the work will be done. I think the first clause should have the insertion of that provision that the council shall on petition of five ratepayers appoint the inspector. If nobody wants an inspector, the council certainly would feel that they were doing a curious thing in appointing one. I would move that those words be inserted, and that with that change we accept the recommendation of the committee and refer it to the Legislative Committee,

Mr. SMITH: There might be townships where there were not five men with sufficient interest to petition; and yet that township might be a breeding-ground to let disease go sweeping through the whole Province.

Mr. JAMES: If you could not get five men to petition for that, you could not enforce it.

Mr. SMITH: If there were somebody to go around they could get those five men.

The SECRETARY: I think when you have the Provincial inspector, there is somebody to appeal to; and I should think that he could, perhaps, act independent of a local inspector if he were called upon by local individuals.

Mr. J. W. SMITH (Winona): I don't think it is right to have more than one inspector—if I have to pay the bill. After a man goes to the expense of setting out the orchard, and waiting a few years to get something, for a man to come in and say, "So many trees have to be cut down," would be hard; and I think we ought to go carefully. I think the township council should pay the inspector, as they do the road master. The appointment of the road master is statutory. An inspector should inspect an orchard three or four times a year at least; and they should be carefully examined.

Mr. ORR: I think it is a clear case that as it is for the benefit of the whole township, the township should pay.

Mr. ALLAN (Goderich): I am afraid the Secretary's amendment would defeat the object, because neighbors in a township would not like to petition, as it would be said to be an unneighborly act.

Mr. M. PETTIT: The government would not make compulsory legislation where it can be made permissive.

Mr. ORR: Could not those five ratepayers appeal to the Provincial inspector?

Mr. HUNTER: I would bear the black-knot all around me before I would go around to get a petition from five men.

Mr. MCMICHAEL: We would soon have the black-knot stamped out if it was made the duty of the councils the same as keeping the roads up; but if it is left to a petition of five the matter will be neglected.

Mr. RACE: I think a Provincial inspector would be sufficient to put all the machinery in motion. Complaints could be made direct to him, and he in turn would deal with the municipalities in detail.

Mr. John LITTLE: In the municipality I am in, every pathmaster is an overseer, but for fifteen years not a fence viewer or overseer has taken anything to do with the Canada thistle.

On motion of Mr. T. Lloyd Jones, the matter was referred back to the committee to report to-morrow morning; and the Convention adjourned at six o'clock.

SECOND DAY—EVENING SESSION.

The evening meeting was held in the Temperance Hall. The weather was very unfavorable, yet a large number assembled.

The PRESIDENT opened the meeting by calling upon Mr. A. McD. ALLAN to lead the discussion on the topic:

"What are the six best varieties of summer, fall and winter apples for profit. What proportion of each is advised for an orchard of 200 trees?"

Mr. ALLAN: I did not expect this topic to come up till to-morrow, and I wanted to draw up proportions after figuring on the matter. If you will name varieties to me, I will reject or accept them, and give my reasons therefor. I will begin at once by naming the Duchess of Oldenburg. I take commercial value to be the ruling element, dollars and cents; and I look on that as the variety that will succeed over the largest possible section of the country. I consider it is impossible for any one to name absolutely varieties that are going to succeed over this whole Province in the other seasons, as I am supposed to do. I can, however, name, as the one for the earliest, the Duchess of Oldenburg, because that is the first apple that comes in for home use. Although it is not the earliest to ripen, yet it is an apple that you can, with benefit to the tree, cull some off when the apple is half-grown; and you will find that for stewing purposes you can use nothing better than a half-grown Duchess of Oldenburg, and by culling them off the tree you will benefit the rest. (Tetofsky suggested.) That has not commercial value, it will not ship as well to a distant market as the Duchess of Oldenburg. I can't make as much money out of it as out of the Duchess. Then I go on to the next—Gravenstein; of course in some sections it cannot be grown profitably, such a section would have to take something else. My preference would be for Gravenstein; and when making a preference I am taking as a basis the general market for our Ontario apples, the market that rules prices generally, the prices at which buyers go out to buy; I mean the British market. The Gravenstein is one of those that commands the highest possible price, for its particular season, in the British market. The Duchess of Oldenburg is an apple that will ship well to Britain, notwithstanding what a great many seem to think. It is to be picked when it gets its bluish color, and before it gets its yellow tinge; the yellow tinge it will get on its voyage over, and come out a perfect apple. Of course we must attend to the shipping and the storing in ship, etc. After the Gravenstein I may mention the St. Lawrence. There are sections where they could grow the St. Lawrence to perfection, and perhaps they could depend upon a crop year after year. It is a good apple when you can get it clean. From the county of Simcoe, in Mr. Caston's section, I have found about as fine St. Lawrence as I have seen in Western Ontario. It is a profitable apple to grow, because it will bring a high price in the British markets. Then we come to one of the highest-priced apples in the British market, the Ribston Pippin. It is, however, a shy bearer in many sections. There are circumstances under which it is a very regular, though not a heavy, bearer. With me it is a regular bearer. If I get from a Ribston Pippin about one-half the crop that I would get on some other varieties, I can make more money out of it than I can out of those other varieties, because I can

get a much higher price for it. Even this year the top of what they call the "fancy market" in Britain can be got for prime Ribstons. It will go over the twenty shillings on every barrel easily; but they have to be prime. (Wealthy suggested). Wealthy is good. I would take Wealthy in preference to Snow at any time. There is more money in Wealthy, many times over in shipping; and as far as it has been grown some time, Wealthy is a cleaner apple than the Snow, generally speaking, although you will find some sections where Snow has been grown profitably. (What about Maiden's Blush?) Maiden's Blush is not in the number, it is a fancy apple. Under some circumstances it will bring money in the Old Country, where they want a fancy apple for decorative purposes. Some years ago Maiden's Blush would stand very well to the top of the list for high prices; but John Bull is getting a little sense now. He had very little a few years ago; but he has begun to look at the quality of the apple more than he did; and the quality of the Maiden's Blush is not well liked there. Be it that, or other reasons they may have, they are not paying the same price for Maiden's Blush. Colvert is a very profitable apple if you can grow it thoroughly clean. If you are thoroughly satisfied you are going to get rid of the fungus spotting, then I would say Colvert. If I were speaking in the Georgian Bay section I would say, "Grow Colvert." They can grow it clean, and get a finer color and a closer, finer grain; and as a result their Colvert will keep longer and ship better than ours, and the quality is finer. Along with the Ribston I would mention the Blenheim, because they go together in price. That is another apple that is a comparatively sectional apple, and it is not a very heavy bearer, and that is not a fault. I think the Blenheim is quite a good enough bearer in the sections where Blenheims succeed; and with a fair crop on the tree you are more apt to get a medium crop the following year; and Blenheim is an apple that will stand at the top of the fancy market with the Ribston side by side, any year. I don't care if there is a glut in the British market, as there has been this year, Blenheim and Ribston Pippin, properly and honestly put up, will bring their own price, year in and year out; and you will find very little if any variation in that price. Then the King of Tompkins County is another, and in naming these I am looking largely, not altogether, to the apples that are bringing perhaps now, or have brought for the past few years, the most in dollars and cents; but I am looking to the future as well, and taking the whole thing in. That is why I am trying as far as possible to name those varieties that have quality, that have flavor that is sure to commend them, and to remain with the British market. I have not named Baldwin yet, though Baldwin has made more money up to the present date than any of those over the whole country, but simply for the reason that Baldwin has not the flavor, it has not the intrinsic quality that would lead me to believe that Baldwin is going to remain at the top of the list for dollars and cents in the British market. It is going to go down, I believe. At the present time there is more money in Baldwin than anything else. There is a great deal of money in Ben Davis. (Ontario?) Ontario I would have instead of Spy, that is, for the profit. Of course Ontario is comparatively a new variety, and has not been sufficiently tested to speak absolutely in regard to it. Like the Spy and smooth-skinned apples, it may be just as subject to this fungus spotting. So far it has not. I have found Ontario clean. I have found it a very even sample, one that you can pick, and find the samples even, all pretty large, fit for No. 1, off the tree. In the British market they will take it in place of Spy. The quality is not altogether special, as the flesh is not under some circumstances It varies more than Spy. I have seen Ontario very much softer, not as firm in flesh as Spy; but generally it is much more tart than Spy, and partakes more of the Wagener. (What about Grimes' Golden?) There is no money in Grimes' Golden. It is too small for the British market, and the color is quite against it; and it is too small for the markets generally. (The quality is there; you said John Bull was getting sensible?) Well, he wants to get all he can for his penny. I don't think he will come to the size. It is difficult to name six varieties to cover these seasons; and all I have attempted to do is to give you the names of those varieties, about in proportion as they come in price in the British market, that is, the way the demand is; and I have left out those varieties that I think have not sufficient quality to warrant me in

saying that they are going to remain in a high priced place in that market. They are getting out of appearance and looking more to quality; and hence the Rhode Island Greening is coming up to the Baldwin, and will pass it. (Cranberry Pippin?) Better quality than Baldwin, very good apple. Of course in our markets there is a run for Spy. I don't wonder at that, I do not include Spy, because of its lateness of bearing, and there are so few on a tree that are clean enough and fit to take the top place in the British market. Spy is spoiling all the time where it is afflicted with the fungus spot. Taking the average over the province, the Spy has not been bringing enough to warrant me in putting it on the paying list. (Ribston and Blenheim Orange are very much the same type of apple). They are very much alike. A great many growers in the Annapolis Valley, Nova Scotia, are making a specialty of Gravenstein, Ribston, Blenheim, and King, they won't grow anything else, because for these they can get fancy prices. (Cox Orange Pippin?) Too small. (Fallawater?) A long keeper. We have made money with it, but it is not a sufficient bearer, that is, you cannot get apples up to the picking period sufficiently well, unless we had those windbreaks around the orchard that we heard of to-day. It is a heavy apple, and a large apple. The quality is not large. The only thing in that that would bring a price would be its long-keeping quality. The actual value there is in any of these varieties is in shipping that variety at the particular season when the British public want to get that right into consumption. Don't ship anything over to be stored there and wait for the consumption, it must go right into consumption. If storing has to be done, let it be done here.

Mr. Race: You have named no apple that is suitable for the late season.

Mr. Allan: Ontario is fit for the late season. I did not take the Russet in. Of course there is more money in the American Golden Russet than in any other russets so far, although the Roxbury Russet is a finer-looking russet, but a little too tart. It will take the market without any trouble from its appearance. (Any sweet apples?) No; the sweet apples are not asked for over there. (Nonpareil of Nova Scotia?) I have always considered that as Roxbury Russet. I have examined them side by side in the Old Country, and I have pronounced it Roxbury Russet. (Swaar?) Swaar has good quality and high color; but the size is against it for the British market.

The President: I will adjourn this discussion till to-morrow.

Piano duet—The Misses Swayze.

Vocal solo—Miss Buck—"The Fairies?" which received an encore, to which she responded.

The President: I thought we had everything about the apple fixed up, but it is like the work of the fruit-grower, just when we think we have got everything done there is something else. We have selected the varieties of apples to grow, and got the land ready, and the windbreaks; but then the little insect needs attention; and Prof. Panton will now show us the insect on the sheet here, so that we can see him in all his beauty. (Laughter.)

The room was then darkened, and Prof. Panton gave a stereopticon exhibition of the various insects, those which are enemies, then those which are friends of the fruit-grower.

THE ENEMIES IN HORTICULTURE AND HOW TO OVERCOME THEM.

Mr. President, Ladies and Gentlemen: The duty devolves upon me to-night to introduce to your notice some of the enemies that war against the horticulturist.

With a view to make the subject interesting and instructive I shall take advantage of this stereopticon and throw upon the canvas pictures of some of the most common pests that check the success of the fruit grower.

The figure now before you represents an unfortunate tree attacked on the one side by parasitic plants and upon the other by insects: the former can be much controlled by spraying with copper compounds, the latter with arsenical mixture and kerosene emulsions. These common enemies put a premium upon skill, patience and industry, and thus to some extent fulfil a good mission.

All plants may be spoken of as flowerless or flowering. Among the flowerless we find the fungi, all developed from spores, while the flowering develop from seeds. The slide now represented on the canvas illustrates the difference between a spore and a seed. Spores are minute, have no embryo, have no definite direction in germination, and give rise to a mass of threadlike structures upon which spores are borne in due time. Seeds, on the other hand, are quite visible, possess an embryo, germinate at a particular point and develop roots, stem, leaves and flowers and seeds.

Slide 3 indicates that the fungi grow upon organic substance, either dead, as in case of mushrooms, or upon living, as rust of wheat, etc. These last forms are called parasites, among which we find the mildews, blights, etc., that trouble the fruit grower. Flowering plants feed upon inorganic substances, such as nitrates, sulphates, etc., in the soil.

Slide 4 introduces to your notice the nine family names which require to be known by the student of parasitic plants. Two of these contain most of the enemies in horticulture, and two trouble the farmer with rust and smut. Two embrace the microbes you now see upon the canvas. Among these are invisible foes which lash even man by inflicting upon him many forms of disease. I shall now bring before you the forms of several of the mildews, followed by a series of of slides illustrating a number of parasitic plants largely connected with grape rot, cherry rot, etc. In both these groups you will observe that a general structure is common, but they vary considerably when you study them with reference to specific characters.

Prof. Panton pointed out the striking feature of each fungus as it appeared upon the canvas, and then gave the remedy. These were followed by illustrations representing 21 common insect enemies for which remedies were also given, all of which are grouped together for convenience under the head of Fungicides and Insecticides as follows:

1. Fungicides.

Fungicides may be defined as chemical compounds or mixtures used for the purpose of destroying such injurious forms of plant life as live upon other plants by absorbing their juices to such an extent as to affect their vitality. Examples are seen in the *rusts, smuts, mildews and blights.*

It is but a comparatively short time since the life history of these obscure forms of plant life has been made out; but during late years wonderful strides have been made in this department of biology, and we are now in possession of knowledge that enables us to hold in check their destructive effects by the application of so-called fungicides; among which some of the most important are:

(1) *Bordeaux Mixture.* This consists of copper sulphate, lime and water in the following proportions: 6 lb. copper sulphate, 4 lb. lime, 22 gals. water. This may be prepared by dissolving the copper compound in 16 gals. water; slake the lime in 6 gals. water, and when the latter is cooled pour it slowly into the copper solution and mix thoroughly. Some use less water for dissolving the first.

Owing to a tendency of this to clog the nozzle of a sprayer some use a modified form (2) 6 lb copper sulphate, 4 lb. lime, 50 gals. water, or (3) 4 lb. copper sulphate, 4 lb. lime and 50 gals. water, and have had good results.

(1) *Eau Celeste.* This consists of copper sulphate, ammonia (commercial) and water, 1 lb. copper sulphate, 1½ pints ammonia and 25 gals. water. Dissolve the copper sulphate in about 2 gals. hot water, as soon as cool add the 1½ pints ammonia and dilute to 25 gals.

2. A modified form has given better results, viz.: 2 lb. copper sulphate dissolved in two gals. water, 2½ lb. sodium carbonate (washing soda) dissolved in another vessel. Mix these, and when chemical action has ceased add 1½ pints of ammonia and dilute to 22 gals. Some dilute even to 30 with good results.

Eau Grison (Grison Liquid). This consists of sulphur, lime and water. Boil 3 lb. sulphur and 3 lb. lime in 6 gals. water until reduced to 2 gals. When settled pour off the clear liquid; this may be bottled and when used dilute with 100 parts water. This is used to destroy downy mildew and powdery mildew of the grape and the mildew of the gooseberry.

Copper Sulphate. 1 lb. in 25 gals. water is used to spray on vines and trees in early spring to destroy the winter spores of Fungi.

**Ammoniacal solution of copper carbonate.*—Copper carbonate, ammonia and water. Dissolve 4oz. copper carbonate in 2 quarts ammonia, and when about to use dilute to 30 gals.

Potassium Sulphide. 1 oz. potassium sulphide to 2 gals. water.

*Galloway's mixture No. 5 is equal parts ammoniated copper sulphate and ammonium carbonate. 10 oz. of the mixture to 25 gals. water. Combined Insecticide and Fungicide, 4 oz. Paris green to 50 gals. of Bordeaux Mixture, No. 3.

Remedies.

"*Spot*" *of Apple.* 1. Spray in spring before the blossoms open with Bordeaux mixture No. 3, then as soon as fruit is well formed, again with the same, and repeat about twice at an interval of two weeks. If 4 oz. of Paris green be added to the barrel when spraying 2nd, 3rd and 4th times, it will be effective against insects. 2. Galloway mixture No. 5. 3. Ammoniacal solution of copper carbonate. 4. Modified Eau Celeste. 2, 3 and 4 may be applied once before blossoming, next when fruit is about the size of peas, and the last time about two weeks later. Nos. 3 and 4 have been very successful.

"*Brown Rot*" of stone fruits found on the cherry, plum and peach.

The same as remedy No. 1 for "Spot" on apple.

"*Pear Leaf Blight.*" 1. Spray with ammoniacal solution of copper carbonate as soon as the leaves begin to unfold, repeat 3 times at intervals of two weeks.

2. Dilute Bordeaux mixture as for apple "spot."

Strawberry Leaf Blight. Spray with ammoniacal solution of copper carbonate, Bordeaux mixture or eau celeste every two weeks during July and August.

Gooseberry Mildew. Spray with a solution of potassium sulphide 1 or to 2 gals. water. Begin as soon as the leaves commence to open, repeat every three weeks.

Black Rot of Grape. Spray with ammoniacal solution of copper carbonate 6 times commencing early in May and repeating every 15 days.

Downy Mildew of Grape. Spray eau celeste upon the vines 10 days before they blossom; a second time when berries are well set, and a third three weeks later.

Anthracnose of the Raspberry or *Cane Rust.* Spray Bordeaux mixture No. 3. Apply once before the leaves come out, twice after, but not after the blossoms open. Spray especially on the young growth.

II. Insecticides.

Compounds or mixtures used to destroy insects injurious to vegetation:

Paris Green (arsenite of copper containing 50 to 60 per cent. of arsenic). Applied dry or in solution. In the dry form best mixed with 50 to 100 parts plaster, wood-ashes, flour or air-slaked lime and dusted upon the affected plants. The wet form is usually used in the proportion of 1 lb. Paris green to 200 gals. of water, but if the foliage is ten-

der 250 to 300 gals. water (applies to application upon the plum). As this green powder does not dissolve it requires to be kept thoroughly mixed. It is an excellent insecticide against potato bug, plum curculio, canker worm, tent-caterpillar, grape-vine beetle and codling moth. It can be used successfully in nearly all cases of leaf-eating insects.

London Purple. An arsenite of lime obtained as a by-product in manufacturing dyes; is largely used instead of Paris green; but being more soluble in water it is likely to injure the foliage, and besides its composition varies considerably so that when used it is not likely to give as uniform results as Paris green.

In spraying for codling moth it is usual to spray after the blossoms fall, when the apples are about the size of peas and before they have turned downwards on the stem, and a second time about ten days after. For plum curculio, as soon as the fruit is formed, followed by two or three applications with an interval of ten days between. In this case the solution is weaker than that used upon the apple, 1lb. in 250 to 300 gals. of water.

Kerosene Emulsion. A mixture of coal oil and water. There are three mixtures of this kind that are used to a considerable extent:

(a) Riley-Hubbard Emulsion. ½ lb. hard soap in 1 gal. rain water, boil till dissolved, then add 2 gals. coal oil and mix thoroughly for about five minutes. When properly mixed it will adhere to glass without oiliness. In using dilute with 9 parts water (soft).

(b) Cook's Emulsion (soft soap). 1 quart soft soap, 2 quarts boiling water. While hot add 1 pint of coal oil. Mix thoroughly. In using dilute with equal amount of water.

(c) Cook's Emulsion (hard soap). ¼ lb. hard soap, 2 quarts water and 1 pint coa oil, and thoroughly mix while hot. In using dilute with twice the amount of water.

These emulsions are very excellent against plant lice, scale insects, chinch bug, cabbage-worm, and even rose-beetle.

Hellebore. Obtained from the powdered roots of a plant (Veratrum album). May be applied dry or as a liquid. 1 oz. to 3 gals. water. Excellent against currant worm and cherry slug.

Pyrethrum. Made from the powdered flowers of the genus pyrethrum, a plant of the sunflower family. It should be fresh, and hence should be kept in closed vessels. Used in dry form, 1 part pyrethrum, 5 to 8 parts flour; or liquid 1 oz. in 3 gals. water. A good remedy for cabbage worm.

**Carbolic Acid Emulsion.* 1 part carbolic acid to 7 parts of a solution consisting of 1 quart soft soap or ¼ lb. hard in 2 quarts water. This applied to affected trees destroys bark lice and the borers. It should be well rubbed upon the parts attacked.

Tobacco. The refuse from cigar manufactories answers the purpose. A strong solution, about 1 pound of tobacco to 2 gals. water, destroys plant lice and flea beetles.

Alkaline Wash. A strong solution of washing soda mixed with soft soap until about as thick as paint. Applied to the trunk of trees destroys the borers and gives a healthy, vigorous tone to the tree.

The foregoing compounds and mixtures are usually applied by means of spraying machines, many of which are now advertised, and information concerning them can be readily obtained from seedsmen or others concerned in their sale.

The following list of prices will give the readers an idea of the approximate cost incurred by the use of certain compounds in making up mixtures. Price per lb :— Ammonia, 25c.; copper carbonate, 60c.: Paris green, 30c.; London purple, 15c.; pyrethrum, 40c.; copper sulphate, 12c.; hellebore, 25c.; sodium carbonate, 5c.

* In the case of bark lice kerosene emulsion should be sprayed upon the trees as soon as the young lice begin to crawl about the twigs; this is usually about June.

PRECAUTIONS IN SPRAYING, ETC.

1. Keep poisonous substances labelled and out of the way of children.

2. Do not continue to spray so far into the season as to affect the fruit.

3. In making emulsions remember the inflammable nature of coal oil.

4. Never spray trees in bloom.

5. Try mixtures on a small scale if you have any doubts regarding their effect upon the foliage.

6. Be careful and thorough in your work.

Much has been said of late regarding the danger incurred by eating fruit from trees and vines which had been sprayed with Paris green; but careful chemical analysis show there is no ground for such an alarm. The same is true regarding the copper compounds which are sprayed in such weak mixture that there is no danger of any one eating sufficient fruit to injure them from the poison upon it by using the above spraying mixtures.

The PRESIDENT: We have been in the dark for some time, but we have got a great light (Laughter) and if there are any questions, Prof. Panton will be pleased to answer them.

A DELEGATE: How would you destroy canker worm?

Prof. PANTON: Paris green one pound to 200 gallons.

Mr. GOTT: Why should the remedies be different for fungi from those used for very small insects?

Prof. PANTON: They are not very different now-a-days. The Bordeaux mixture is a remedy for a great many of them; but there are many things that are alike to a certain extent, and yet the same thing would not have the same effect. This whole question of fungicides is just in its infancy. Who heard of spraying until about 1885 or 1886? The only thing that was heard of was throwing a little Paris green with a watering can upon a bush. We have made a great deal of progress, and can stay a great many of them; but we may have one compound that will do more.

Mr. ORR: Can the spores that you speak of forming in the fall be successfully treated in the fall by the Bordeaux mixture?

Prof. PANTON: I hardly think so. I think you will have to wait till the spring. They are in a sort of dormant condition—lying over.

A DELEGATE: Where affected by mildew should we burn the leaves?

Prof. PANTON: By all means. Wherever there is fruit or anything like that that has been affected by a fungoid, it should be burned up and destroyed.

Q.—How would it do to plow it under? A.—It would be just as easy to destroy it. Plowing would do if you plow it deep enough.

Q.—Where there is black knot on the tree would it be safe to leave the tree without cutting it out? A.—That is a very difficult thing to do. You can hardly find a case where there is a single knot.

Q.—I mean the limbs? A.—The difficulty is to cut out all what we call these mycelium threads. If you could get to the end of that, and were sure you had cut it out, you would be sure you had got rid of the trouble; but the difficulty is to do such a thing. I live in hopes that we may strike a compound that will be successful. As I take the plum knot in June and look at it, I find spores by the thousand. The Bordeaux mixture has been tried, and met with some success. The success reported by a single person you cannot lay great stress on—there must be a number of examples before you can rely on the results. I believe there will be a compound for this fungus, but it has not appeared yet.

A DELEGATE reported that last fall he had cured the black knot on his cherry trees by cutting out the knot as clean as possible and painting with pure turpentine over the

blaze. This fall there was not the least sign on them, and they had healed all over just as if the parts had been cut out of a healthy tree. This proved to be a good way of treating trees where the limbs were too large to cut off without injuring the tree.

Mr. RACE: I did the same thing, only nipping them with nippers; and I had the same experience as you have.

Q.—Are we always safe in using Bordeaux mixture? A.—Yes, it may be used at any time. It is especially good for spraying in the early part of the spring. All the different remedies are mentioned in Bulletin No. 79.

Mr. PEART: Do you think anything is going to come from the experiments on the apple spot?

Prof. PANTON: Prof. Goff, of the Wisconsin station, has been making one of a series of experiments. His report shows that there was a less development of spots. I think the same bulletin on Insecticides is issued from Ottawa.

Prof. CRAIG expressed pleasure at the way in which the enemies of the fruit grower had been shown up by the lecturer. The formula of the Bordeaux mixture, if used in proportion of 6 to 4, will clog the nozzle very much; and considerable care has to be taken in straining the lime which is used. If this is not done a considerable difficulty will be found in getting it into a fine spray. Using it half strength, which had been found quite effective, and taking some little care to strain the lime after mixing it with water, there will be no difficulty in using it effectively.

Mr. HADDLESEY gave a piano solo.

The meeting closed by the audience singing the National Anthem.

THIRD DAY—MORNING SESSION.

BRANTFORD, Thursday, Dec. 8, 1892.

The Convention was called te order at 10 a.m.

The SECRETARY read a telegram from Hon. A. S. Hardy, and letters from Mr. W. Patterson, M.P., Mr. S. D. Willard, Vice-President Horticultural Society, New York State, Mr. Shutt, Chemist of the Experimental Farm, Ottawa, Mr. W. E. Wellington, Toronto, and Mr. E. B. Edwards, Secretary Peterborough Fruit Growers' Association, and Mr. J. S. Woodward, Secretary Farmers' Institutes, New York State, regretting their inability to be present.

The PRESIDENT: I wish to announce that arrangements have been made with the local association here that on payment of $1.05 persons may become members of both Associations.

EXPERIMENT STATIONS FOR FRUIT.

The following paper was read by Mr. A. M. SMITH:

MR. PRESIDENT AND GENTLEMEN: From the title of my subject as announced on the programme you might think I was going to give my own experience in growing new fruits but such is not my intention. "Experimenting with new fruits and its cost to the country" is more properly the subject which I wish to present for your consideration, and in doing so, I may make some statements which you may think extravagant, to say the least; but I want you to carefully examine the facts and see if they will not bear out my assertions. Last winter while I was attending a meeting of the Michigan Horticultural Society it was stated by one of their prominent members, I think their venerable president, T. T. Lyon (who is also a director of one of their fruit experiment stations), that there was annually enough money spent in the purchase of worthless fruits to

maintain the poor of the state." I have been thinking upon this subject and making a little estimate of the amount spent here in Ontario and I have come to the conclusion that the amount spent here in worthless fruits and fruits not adapted to the climate and wants of the country and in their cultivation would far exceed that sum, and I will venture the assertion that within the last 25 years there has been more money wasted in them in Ontario than would take to pay her share of the national debt (which you all know is not a very small sum.) I know it is far easier to make an assertion than to prove it, and that what might be accepted as proof by those familiar with a subject might not be understood by those who were not. But I think all of you who have had experience in growing fruit and in marketing it will fully understand the difference between the value of a tree that produces ten dollars worth of fruit and and one that produces 50 cents worth. or less, annually; particularly if the latter cost five times as much when planted and has perhaps had twice the time and money expended upon its cultivation. And I doubt not but your experience in finding this out has cost some of you more than your share of the national debt. But there are others perhaps who are not familiar with this business whom it would be hard to convince that there was such a loss. But suppose we take an ordinary farmer's orchard, like a majority of them in our neighbourhood, and on an average what proportion of good paying varieties do we find that will yield a good fair crop, of a quality that will bring a first-class price in the market? Take the country through and you will not find over 25 per cent. I have packed apples in nearly all of the best apple sections in the country and I did not find that on an average, and what are the rest? They are apples ranging from fair to worthless. Let us see what this means: Take 100 apple trees which should, at a low estimate, average 2 barrels to the tree for 20 years—worth one dollar per barrel—and because three-fourths of them are not adapted to the country or the market and they only average one barrel, you have a yearly loss of $100 to each one hundred trees, or $2,000 in 20 years. How much would that amount to on the total orcharding of Ontario? And this is not all, the same holds good on all other varieties of fruit; pears, plums, peaches, cherries, grapes and small fruits. One-half of the money expended upon them has been a total loss, except to the nurseryman and perhaps the experience bought may be of use to some, though I am sorry to say one-half of our farmers do not seem to profit by it, for the very next agent that comes along with a picture of something new and wonderful and a recommend that it will bear from July to January in any soil or climate, from Manitoba to Texas, will get their order. This loss is not confined to farmers and fruit growers alone. Our mechanics and townspeople are annually spending thousands of dollars for trees and plants to stock their gardens, more than one-half of which is inferior or worthless or not adapted to the climate. Now the question is, how has this state of things come about? Who is to blame for it? And what is the remedy? In the early history of our country there was some excuse for this. People were anxious to grow fruit and they had no means of knowing whether a variety was good or would succeed here or not till they tried it; and later on, agents from the other side thronged the country recommending this and that variety, and many with the hope of getting something good, planted a little of everything which accounts for the large collection of varieties in some of our old orchards. But as years rolled around and there began to be a demand for shipping fruits and planters began to understand what varieties were profitable they commenced to order these varieties largely and plant new orchards—and here comes in the iniquity of the tree agent, and I am sorry to say some of the nurserymen. There was not enough of this class of trees to supply the demand and these was inserted in their blank orders—which they always carry to be filled out, this clause (which is generally unobserved by the purchaser who signs it.) "If you have not the varieties called for you may substitute others which you think equally desirable." The consequence was that many a man who gave his order for Baldwins, Greenings, Northern Spy or some other choice variety he wanted, found out when they came to bear that he had Talman Sweet, Colvert, or some variety he did not want; something the nurseryman wanted to get rid of or the tree agent could buy the cheapest and which they thought would be "equally desirable" for them to get the money for. I could point you to hundreds of such cases, but many of you know of them to your sorrow. Besides this there is a laudable desire on the

part of planters to get something new, something there is more money in than the old, and they are on the alert for new things, some of them anxious to get the start of their neighbors Nurserymen, knowing this, are continually introducing new things and by getting high recommends from one another—a kind of a "scratch my back and I'll scratch yours" process. They succeed in selling often at ten times the price of varieties 100 per cent. better It is true that an occasional one may be of value in some sections, but not one in a hundred proves to be superior to the old established varieties I could mention. That thousands of dollars have been paid for through the country and thousands more spent in their cultivation, and which never paid for the time spent in planting much less in nursing and cultivating them. Prof. Lyon, of the Michigan Fruit Experiment Station stated in his report last winter that "not more than one in a hundred of the new sorts or novelties, exceeded or even equalled the old standard varieties, though some of them might appear valuable for a year or two," and his advice to fruit growers was "for general planting let novelties alone." Yet glib-tongued agents will often induce men to invest largely in new untried fruits I knew of one in my section who persuaded a farmer to plant several acres of a new grape called the Early Dawn, for which he obtained an enormous price, representing that they were so early that he would have the market all to himself before his neighbors grapes were ripe and thus secure a fortune. But, when they came to bear, the fact *dawned* upon him that he had been swindled—they were no earlier than some of the old sorts, and far below them in size, quality and productiveness. Similar instances might be multiplied—but it is not necessary. We see and know that these are facts and can understand how they have come about, and I think, can see that we are in a great measure to blame for it ourselves. As long as we continue to invest our money on these new things simply upon the recommendation of a tree agent, or a few men interested in their sale, we shall be doomed to loss and disappointment. I do not wish to insinuate that nurserymen, or tree agents are all rogues; far from it. I believe nurserymen are as honorable men as a class as are engaged in any calling and some tree agents are also; but there are those who like the manufacturers and dealers in whisky are "not in it" for the good they can do the country but for the money they can get out of it.

And now about the remedy for this state of affairs. We do not want to discourage experimenting in new fruits nor introducing them, if they are worthy—on the contrary we want to encourage this work. But we do want to devise some means of having it tested by competent parties not interested in its sale so that we may know whether it is worth planting or not, before we pay out our hard earned dollars for it. This is a matter that affects the whole country at large, not only fruit growers but consumers. We are all interested in getting the very best fruits that our country will produce and at the best possible rates. Anything that hinders their production in perfection diminishes the supply on our markets and adds to their cost. And I know of no better or fairer way to remedy the evil than by asking our government to assist us in this matter by establishing experimental stations in fruit growing districts where fruit can be tested by disinterested parties under its supervision as is done in nearly all of the neighboring states and by enacting laws regulating the sale of trees and plants, making it a criminal offence to wilfully substitute an inferior fruit for one ordered, or in perpetrating frauds of a similar nature. We have advocated this measure before in our Society, and the matter has been brought before the Minister of Agriculture, who I think sees the necessity of it and is willing to do what he can to assist us. No definite action has yet been taken farther than the appointing of a committee to consult as to the best means of carrying out the work, but who as yet have accomplished but little. Still I hope some more definite action will be taken during the coming winter and the matter brought before our legislators, who I think will see the need of this work and grant us what we ask and we want every fruit grower and lover of fruit interested in this work to agitate the subject—talk it to your neighbors, bring the matter before your member of Parliament and if he has not got sense enough to see the necessity of it ask him to step down and out and put some one in his place who has.

Mr. Lee asked whether the statement by fruit-tree men: "We will not be responsible for any verbal statements made by our agents," is binding on the purchaser.

The Secretary: I don't see how the nurserymen could protect themselves from some agents who might say a good many unauthorized things unless that was allowed. I think that what is written is all right to be understood as the agreement between the two parties.

Mr. M. Pettit: I think that was a very excellent paper, and covers the ground pretty thoroughly; and as the time is short possibly it would be better to refer it to a committee without discussion.

The Secretary moved that the subject of Experiment Station be referred to a committee of three, with Mr. A. M. Smith as chairman, and that A. H. Pettit and M. Pettit be the other two members of the committee.

Mr. A. McD. Allan, seconded the motion;

Prof. Craig: Would it not be advisable to add a member from some other part of the Province—perhaps the western part?

The President: Will you suggest a name?

Prof. Craig: Mr. Hilborn, of Leamington.

The motion was then carried.

STRAWBERRIES.

The following topic was then taken up: "Three best strawberries for market and three best for home garden."

Mr. John Little, of Granton, Ont., was called on. He said it was a difficult question to answer, so as to get strawberries that will suit all parts of the Province. Amongst the later varieties for commercial purposes the best are Haverland, Bubach, Warfield, Gandy. There are larger varieties than those, and superior, but they are not in cultivation yet—they are two seedlings that I have tried for some time. One is Regina of Alabama, and the next is Weston from Wisconsin; and that matures about six days later than any variety I have ever grown.

Mr. Race: Would you say anything about the Bubach for foreign markets?

Mr. Little: For shipping purposes I would mention the Woolverton. In all the strawberries I have ever raised I have never grown any that beats that variety. I would name the Princess of Minnesota. Barton's Eclipse is a pistillate variety, but it is early. Bederwood is the proper one to fertilize with, and comes in about the same time.

Mr. A. M. Smith: Have you any experience with Williams?

Mr. Little: Yes. I cannot find any fault with the Williams with regard to the plant—it is a very good plant; but the white tip is just like that of its parent—the Sharpless. That is detrimental to it in more ways than one. Although some say it suits the market well, in our market they do not care for either the Sharpless or the Williams, yet both are excellent bearers.

The Secretary: The Williams is a good deal better shipper than the Sharpless, isn't it?

Mr. Little: Yes.

Mr. Race: Tell us what three varieties would be the most suitable for the St. Mary's district.

Mr. Little: The Princess, both for shipping and home use. It is large and beautiful and good. It has got several prizes at the Minnesota fairs, Gillespie would be another very good one, both for shipping and home use—it is large and good. It is a seedling of the Haverland, and resembles it very much in shape, it is solid. The Haverland, although a good bearer, is not a good shipper, it is soft. Enhance would be another good bearer, and a good shipper too. There is nothing I like so well for its size as the Greenville, introduced this year from Ohio. Among the older varieties for the commercial grower the best are Haverland, Bubach, Warfield and Gandy. The following are equally as good, and some of them better, owing to their size, color and productiveness, and even for keeping longer in fruit: Woolverton, Princess, Moore's Early.

RESULT OF TWENTY YEARS' STRAWBERRY CULTURE.

Mr. JOHN LITTLE of Granton, read the following paper, being the experience gained in growing strawberries during the last twenty years.

Experience implies failure as well as success, and these are not always pleasant to contemplate or rehearse. The thought of a failure, even in review, has a depressing effect. Still failures are lessons, and if followed by improvement, are profitable. "Variety is the spice of life" is true with regard to the strawberry industry. Why, there would be no need of horticultural societies if there were no failures to recount, and think how much we should miss!

To give a detailed account since I first began growing the strawberry, would fill too many pages and take up too much time, and I take it, that to give methods of procedure since I commenced growing this, the choicest of God's choicest gifts to man, would be simply reiterating what has been said, and so well said, over and over again at the yearly meetings of this society, and embodied in their reports. When I first commenced growing the strawberry I had no idea of growing the berries for market, or plants for sale, but to raise berries for our home use. I enlarged our planting, and had no difficulty in selling the surplus, and during all these years I have sold to the same retail house in St. Marys never having to ship to other points. Up till this date I have tested all other varieties that have been brought to the notice of the strawberry-loving public. There is no mystery about strawberry growing. The plant thrives upon any good soil, and its culture is simple, the only secrets of a bountiful yield of fruit are, first, the selection of suitable varieties and, second, thorough preparation of the ground and systematic cultivation; and, when thus generously treated, there is no product of the soil that gives larger returns for the time and labor expended nor is there any more certain fruit crop grown in our country. From the great number of strawberries now in cultivation, it is impossible to say of any two or three, or of any half dozen or dozen, "these are the best and should have the preference of all others." The value of many varieties depends on the locality where they are raised—soil, climate and the particular market where they are disposed of determining in some measure their worth. Many of the varieties of the highest qualities and which are most estimable for the garden when they are to pass directly to the table, have peculiarities which unfit them for profitable cultivation for shipping to distant markets, and on the other hand some of the most profitable varieties for large growers who send them to distant markets are so inferior in quality that they would be refused at the table of a connoisseur such as every amateur grower of this most delicious fruit should be. To some extent every strawberry grower must test varieties for himself, but the varieties now in cultivation are all so good, and the information in regard to them so full, that there is little danger in obtaining any that is really worthless.

ARE NEW VARIETIES VALUABLE IN COMPARISON WITH THE OLD.

Some selected hints in this connection are worth careful consideration. Just what variety will give best satisfaction on your grounds. A knowledge of varieties is of the most importance and no one cares to limit his acquaintance to two or three. The statement is made at horticultural meetings and elsewhere, that, with all the talk and all the efforts for forty years, no one has yet produced a better market berry than "Wilson's Albany seedling" and the conclusion was reached that all should stick to the "old reliable" and let others prove the new, This may be good advice but it is hardly necessary inasmuch as the majority of cultivators are inclined to that course and will pursue it without any prompting,

Fortunately for horticultural progress there are a few "cranks" in this as in other callings—enough to keep the world moving—and the improvements in small fruits which they have brought about are really marvellous when we remember that but little more than fifty years ago the only varieties known, were the wild berries of the field and wood. There is not one of the many fine varieties now known that will not in time be superseded by others still better. The "Wilson" was a great berry in its day (forty years ago), when

horticulture as a science was in its infancy ; it was then deemed a prodigy, and it was in everything but quantity a decided advance from previously existing varieties. No one would suppose it was ever new to note the observations of some conservative growers and writers who venerate it for what it has been rather than for what it is, and who despise and would belittle varieties because they are new without having tried them. The Wilson possessed wonderful vitality, and held its own for a long time, though, as some one has said, it was never fit to eat. But age and much transplanting have weakened it as they will weaken any variety. Except in a very few northern localities the famous Wilson is now uncertain in yield. That it is nowhere as profitable as formerly is the testimony of all well posted cultivators who grow for profit. Some nurserymen still grow the plants to satisfy the wants of a few old growers who love an old berry for its name's sake ; a good deal as they would love an old coat or an old political party.

The time was when Wilson, Crescent. Sharpless, and others were our best varieties, but these have been almost displaced by other, and better kinds.

Success with strawberries does not end with growing ; but one who is really successful follows up every detail, the selection of plants, planting, cultivating, picking, packing, and putting them on the market fresh, whether it be for shipping or for the home market. The home market is usually the most satisfactory, and if a grower is careful in all the details being sure that there are just as good berries at the bottom and all through the basket as at the top, he will soon acquire a reputation and trade for all he can grow, at prices that will pay him for his trouble,

Among the older varieties for the commercial grower the best are Haverland, Bubach, Warfield and Gandy. The following are equally as good as those, and some of them are better owing to their size, color and productiveness, and keep longer in fruiting, and are good to ship. I head the list with Woolverton, Princess, Lovett's Early (not early—it is medium and good), Gov. Hoard, Greenville, Middifield, Barton's Eclipse, Gillespie, Enhance, Williams. The very late berries here are in the order named : Gandy, Regina, and Weston from Wisconsin. In planting for a fancy market and to name a few varieties to cover the entire season I would advise : For early—Barton's Eclipse, Woolverton, Gov. Hoard ; early to medium—Beder Wood, Haverland, Bubach No. 5 ; medium to late—Lovett, Gandy, Regina, Weston. For near market—Beder Wood, Bubach No. 5, and Haverland.

Mr. Race (in the chair) : We would like to hear from Mr. Greig as to his experience in the Williams ?

Mr. Greig of Cainsville : My experience is very favorable. The Williams is far more profitable—that is if any strawberry in this locality is profitable. It is superior to the Wilson and the Crescent. The Wilson does not do well in our soil. We tested the Crescent along with the Williams. The first two pickings we will have more from the Crescent, but it dwindles down. The Williams has a long season ; I think last season we gathered them a little over four weeks. We had no trouble with the white tips last year. By leaving them a day longer on the plant they ripened up to the very tip. We had trouble with some pickers, who would take them with the white tips ; but we were hard put to get pickers last year, and we picked them ourselves. We always received a cent or a cent and a half over the common berry.

Mr. Race : What three varieties would you recommend for the home market ?

Mr. Greig : The Williams, the Bubach and the Warfield.

Mr. Race : You would not care to recommend any three for shipping ?

Mr. Greig : No.

Mr. W. H. Lee (Niagara): I have had, possibly, more experience in the Williams than any one in the Association, having introduced the berry to the Association while they were in session at Niagara, and grown it now for about eight years. My experience has been such that if I had to grow the Wilson and the Crescent, and allow somebody else to grow the Williams, I would quit right off, for I would feel that I could not make a living. In shipping to Toronto I can get for the Williams from two to three cents a bas-

ket more than for the Crescent and Wilson. You will make a mistake if you do not give the Williams strawberry prominence. I say it with no personal interests whatever; but I have tested it in this locality—once having lived here—and it is doing very well where I am now. Of course it will do better upon heavier soil. It may not stand drouth with the Bubach, but it is a very much better paying berry. I can safely say I get two baskets to one, and a better price. The Bubach is too soft to ship to any distant market, although I shipped them as far as Montreal with no bad results. There is one point I would like to make about windbreaks. Pretty thick windbreaks are very essential in this locality—and the farther you go north the more essential they are; but in the Niagara peninsula where I am you don't want too many of them, because we are situated between the two waters, and when this muggy weather comes on we want a circulation of air. Here, where the thermometer sometimes goes 20° below zero, a windbreak is a very good thing; but if the thermometer doesn't go below zero you don't need them.

Mr. E. D. Smith: Sufficient importance is hardly given to firmness in strawberries. The three chief elements of success in strawberries are: vigor of plant, productiveness, and firmness of strawberries. We have a large market in the Maritime Provinces, because our market opens up two or three weeks earlier than theirs. We must grow a firmer berry.

Mr. Little: And larger.

Mr. Smith: The Williams fills that bill—it is large and it is firm. It is almost as prolific a plant as the Crescent.

Mr. Blanchard: I would name the three for home: Saunders, Eureka and Warfield; for Market: Bubach, Haverland and Saunders.

Mr. Race: For the last few years I have run from twenty to thirty varieties of strawberries in my garden. I ran these down to the Williams, the Bubach and Haverland; and I would limit farther to Bubach and Williams.

Mr. Hilborn: I think the Haverland is far superior to the Bubach, take it all round. The Wilson is still a favorite in our section, only it is badly affected with the rust on leaves. If we could cure it of that, and be careful about the selection of plants,—I think there is a good deal about the point that was made as to getting the new plants from plants that have never borne—there is no better berry for canning or for shipping, if grown on a loam, for our locality.

Mr. Little: Take the first runner that comes, and no more; and if it offers to put out a runner, nip it off and let it get fully established, with roots you could hold in your hand.

EXPERIENCE WITH PEAR CULTURE.

Mr. S. Hunter, of Scotland, read the following paper:

When I received the invitation from your worthy Secretary to give a paper upon pear culture, I felt that had he given me pear failure instead I might probably have been in a position to do a measure of justice to that side of the question.

I very much resemble the man in the parable who planted a vineyard, let it to husbandmen and took his journey to a far country. He came seeking fruit but found none, but in some respects he was better off than I. His vines were there, while I found quite a number of stumps and the skeleton of my once beautiful and thrifty pear orchard, and that too after an absence of only about seven years. I should therefore have two or three years time allowed for treatment before being called to account. Just here I would say, that of all the fruits we grow in this climate the pear is the most capricious and intricate, ever determined to grow its own way. Some one has written "as the twig is bent the tree is inclined," but that man had not much experience growing pear trees, unless it might have been Winter Nelis and a few of that class. They would suit the farmer who planted his potatoes in the moon and wanted to get up there to hoe them.

I would add a note of caution to the person who just takes to pear growing for what money there is in it ; unless he has a love for the pursuit for its own sake and expects to trim up the body so he can work close to or under them with his team, sow and reap grain annually, besides making a stockyard of the orchard all winter, that person had better try something else. Yet it is a most fascinating pursuit to those who become interested in it and make it a sort of hobby.

My first experience with the pear was on the other side of the Atlantic. When an apprentice I was allowed to compound the clay for grafting a few trees in the garden, and there my love for the pursuit was first aroused, but I need only go back about twenty-five years to the time I purchased the site of our present home, commencing with four pear trees, if I count dead as well as partly so. One I dug up, one had a sucker from the root that I grafted, cutting the old tree even with the ground, the other two were partly blighted, which parts I carefully removed.. My scion grew, showed no signs of blight, in three years, I topgrafted again with another variety, and it is to-day as good a tree as any left. It was a little blighted when I returned, I kept the soil well worked and manured and like many amateurs did a great many unnecessary things.

I scraped the bark, washed the trunk with a variety of preparations, mulched with straw, coarse manure, grass, sawdust and chips and it would be difficult to tell what all I did ; all of which I regard as a waste of time, excepting whatever plant food there is in it. Mean-while I kept increasing the number of trees and varieties, which numbered more than the trees, at one time obtaining the stock from a variety of sources, the Fruit Growers' Association included. I did not heed the warning against too many varieties, a rock upon which a goodly number have struck, as we find when the buyer comes around and will take but one variety. I also raised quite a number of seedlings. I am saving two for further trial, which I think have merit. Two rows of seedlings suffered quite as much from blight as did the grafted varieties, during my absence. After a few years cultivation and care, blight disappeared and, for about twelve years before I left, I could have carried all the blighted branches in my arms at one time. Nor was there any sign of blight on trees young or old, when I left eight years ago, nor so far as I can learn two or three years later, the orchard then consisting of about four hundred trees, a few in other lots. During all that time, blight was just as common all around, as at present although not quite so many pears grown, but here let me draw the curtain and sum up my experience, or lessons of the past.

Location.—Whilst it is well to select a suitable location when a choice is possible, still in most cases we have no choice, and, if lacking in any important quality, supply it as far as we can, such as drainage, shelter, or, even qualities lacking in the soil may be, to a great extent, made up. Our land is a sandy loam, with limestone, gravel and clay subsoil, naturally drained, and with southern exposure.

Shelter.—I plant both evergreens and deciduous trees. Our native hemlock (abies canadensis) is a favorite with me, although of slower growth than many others. Our are sheltered on three sides, north, east and west, planting trees and shade at the same time and letting all grow up together.

Preparation of soil—When time permits I manure and fall plow, but for the most part I have planted the trees and prepared the land afterwards which answered quite as well, often saving a year's growth in the trees.

Choice of trees—When possible I select good sized, thrifty young trees, the wood well ripened. I prefer those grown south of where they are intended to grow, they are not so likely to be blackhearted. I get them either in spring or fall, with a preference for fall, heel in, but in no case plant in the fall. I can then plant in spring just as soon as frost is out, which is much earlier than we can get them from the nursery.

Varieties.—The choice of varieties depends so much upon what disposition you are going to make of the fruit, as well as location, that I will say very little about it, especially as there is such a good list of pears given in the last year's Annual Report of this Association, and although I have in cultivation about fifty named varieties, I would not like to discard any with two exceptions, that is the Autumn Belle and the Kieffer. To

illustrate, when I tried to sell a few of the first named variety to Mr. B. Foster, a well known fruit dealer of this city, he said: "No, sir, Mr. H., for I tell you when they come to be good, they are good for nothing, and that is more than can be said of Kieffer, for it never does come to be good at all, and I have tried it both here and in the State of Delaware, where it ought to grow to perfection, if any where."

Planting.—Having the ground staked out I use a planter, figure of which was given in the *Canadian Horticulturist* some time ago. I only take up a few trees at a time, and keep them covered from sun and air with a horseblanket, dig the hole larger than will receive the roots and a little deeper, throw two spadefuls of surface soil in the bottom, leaving it a little crowning in the center, on this let the roots radiate, with a downward tendency, (after having cut of all broken ends with a sharp knife) and only a little deeper than the tree stood in the nursery, for most trees are planted too deep. Put in a little fine soil and fill well among the roots, then fill level and pack firm, holding the top a little to westward. Head in a little, cutting of all broken and crushed twigs. Trees are usually sufficiently pruned before leaving the nursery to suit me.

Cultivation.— I make a point of keeping the ground well stirred around all young trees for the first two years at least, if situated where I can reach them with a cultivator; if not, I keep a circle hoed at least three feet from the tree once in two weeks until the last of August. I prefer keeping the ground well stirred, to mulching, in fact I do not mulch at all. I think it does more harm than good.

Manuring.—Give the land a liberal manuring broadcast, the trees will find it. Well rotted barnyard manure, wood ashes, broken or crushed bone, and if the land is sand or gravelly, a mixture of swamp muck is good for leaf and wood growth. I have also used considerable horse hoof-parings, which I think beneficial. I grow hoed crops as long as there is room, and light corn is a favorite crop on account of the shade it affords during the hot weather.

Pruning.—In the matter of pruning, I find myself in direct opposition to most of the advice given, even in the *Horticulturist*. I cannot help it. I would not prune any tree that I wished to live and grow, out of the growing season. I would not prune a scrub oak in winter, unless I wished to make it more scrubby. Why just look at those once beautiful shade trees in parks and streets of this city. The scars of last winter's pruning will not be healed over in the next ten years. I find the best time to prune is when fruit is setting, or a little later, both for growth and fruitfulness, as well as quick healing. To prune in this climate in winter, or early spring, whether hard frozen, or not frozen at all, is, to say the least, very injurious. I have noticed wounds made from winter pruning to bleed for three years in succession, causing sap rot and attracting borers and that too after the application of a coat of paint. Winter prunning came from across the Atlantic and, although not so injurious there, it were better done in the growing season. I like the pyramidal form of the pear tree, with branches coming close to the ground; head in to keep them from going too rapidly skyward, and only remove the lower branches gradually. I use them to grow roots and stocky stems, being careful to leave enough of the lower ones to keep the trunk shaded, unless otherwise provided for. I am fully aware that it requires more hand labor to work under them, but we cannot get pears to do well with a tall bare trunk, like some of the long legged appletrees you see standing all about, with a tuft of branches resembling a broom on the end of a pole. Mine were so treated during my absence and to this, more than anything else, I attribute the loss of so many of the most thrifty trees. Better prune none at all than too much, or out of season. I was much interested last summer in watching the fight for life with some trees that had been thus mutilated. A part of the branches grew straight up and part grew downward, forming a sort of cloak to shield the body from the burning sun. They spoke to me in unmistakable language, as though they felt the pain and said never allow me to be stripped in that way again. Those that had not vigor enough to thus shield themselves gave up the contest and I have grubbed out already over one hundred.

Thinning.—I regard this as a very important operation, the pear, like the plum, is apt to overbear, and both for the life of the tree and quality of fruit should be carefully thinned.

Spraying is now a necessity. I suppose those who would grow smooth and sound fruit but not having sufficient experience in that line will be glad to hear it from some one who has, and this paper being already too long I thank you for a patient hearing and take my seat.

SERIOUS INJURY THREATENING OUR PEAR TREES.

The following paper on this subject was presented by Mr. D. W. Beadle of Toronto :

In Saunders' "Insects Injurious to Fruits," brief mention is made of a very small insect that has recently spread in such immense numbers into western New York, and has inflicted such severe losses upon cultivators of the pear, that it seems highly important to warn our fruit growers of the probable invasion of Canada by this destructive foe of the pear tree. It is known to entomologists as the Pear-tree Psylla. Psylla pyricola was imported from Europe in 1832 on some young pear trees into the State of Connecticut, from whence it has spread into Massachusetts, New York, New Jersey, Michigan and Illinois. In the season of 1891 it suddenly appeared in such enormous numbers that thousands of dollars worth of fruit and many trees were destroyed by it. It seems at present to be most abundant and therefore most destructive in the adjoining State of New York, and for this reason we call attention now to this minute but formidable insect, that our pear growers may be warned in time, and be on the look out for its appearance and prepared to give it battle.

Its presence in force is indicated by the drooping and withering of the young shoots early in the season, followed by the sickly appearance of the whole tree, the leaves turning yellow, and the fruit scarcely increasing in size, until at length the leaves and fruit fall. Accompanying these indications is the presence of large quantities of honey-dew on the twigs, branches and trunks, sometimes dropping in a shower upon the ground. This sweet, water-like fluid appears soon after the leaves expand, and continues during the season. At first it is clear like water, but soon a black fungus grows in it, spreading rapidly, giving it a dark sooty appearance as if the trees had been a long time enveloped in the dense smoke of some factory.

The insect that is the cause of all this mischief may be found laying its eggs just as soon as mild weather sets in, usually about the middle of April. The insects found at this time have passed the winter hidden under the loosened bark of the large limbs or trunk or in cavities formed by the bark growing about the scar of a severed branch. They are so small and in color so like that of the bark that it is not easy to see them. Yet they are larger than those of the summer broods and differ from them so much in many respects that eminent entomologists have supposed them to be a different species, and gave them the name of Psylla simulans But the only differences are in their larger size and darker color. They are nearly one-third larger, and the predominating color is black, the body being of a dark reddish brown with intensely black markings, while the front wings are quite transparent. Both sexes will be found in about equal numbers, and if sought for as soon as the mild weather has warmed them into life will be seen in copulation. In the course of ten days the work of procreation will have been completed, and most of the eggs been laid. These are deposited in the creases of the bark, in the leaf scars about the bases of the terminal buds, and occasionally about the side buds near the terminal. Usually they are laid singly, but sometimes in rows of eight or ten. These eggs are so small that it would require eighty placed end to end to measure an inch, hence are scarcely visible without the aid of a magnifier. They are somewhat pyriform, smooth, shining, light orange when first laid, becoming darker before hatching, attached to the tree by a short stalk on the larger end, and exhibiting a long thread-like process from the smaller. The length of time elapsing between the laying and hatching of the eggs depends upon the temperature. Those taken into a warm room hatched in eleven days, while those left upon the trees did not hatch until more than a month after they were laid, the weather being cool. In about forty-five days from the time the egg-laying commenced the most of the eggs were hatched, and the insects that had passed the winter in hibernation had disappeared.

Immediately that the insect is hatched it seeks a feeding place, its favorite place being the axil of the leaf stalk, or of the fruit stems. At this stage of its life it is very unlike the mature insect; it is now in what is called the nymph stage, corresponding to the larval stage of the butterfly, or to speak with greater precision, to the combined stages of larva and chrysalis. They do not move about much unless disturbed, then they crawl off quite rapidly.

Figure 1 is a highly magnified drawing of an egg, showing the stalk by which it is attached to the bark projecting from the under side of the large end, and the long thread-like elongation of the small end.

Figure 2 is a representation of the nymph as seen from above, when it has become full grown, also highly magnified; and figure 3 exhibits the under side. The line at the side of each indicates its actual size.

Fig. 1. *Egg.*

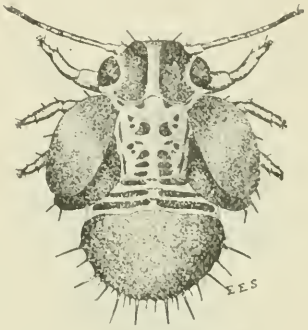


Fig. 2. *Full grown nymph, dorsal view.*

When first hatched the nymphs are oval in outline, of a pale transparent yellow, the abdomen more opaque and darker; the eyes crimson, large and distinct, but the insects are so small as to be scarcely visible without the aid of a lens, measuring only .013 of an inch in length. The wing pads are not yet to be seen. In about seven days they undergo their first moult, the skin bursts along the middle of the head and back, and the nymph crawls out to seek a new feeding place, leaving the old skin attached to the globule of honey-dew it had secreted. The wing-pads are now discernible. In about four days they moult a second time, and have now attained to .027 of an inch in length, and the wing-pads, perceptibly larger. The third moult occurs about three days after; the nymphs are now .038 of an inch long, the eyes have become of a dark crimson hue, and the wing-pads are larger. They continue in this stage about four days, and then moult for the fourth time. The nymphs have now assumed the appearance shown in figures 2 and 3, measuring .055 of an inch in length, and .045 of an inch in breadth, are of a general blackish color, often tinged with red, and the eyes of a bright crimson. The wing-pads are black and form a conspicuous feature; while the whole body is very much flattened, the thickness being only one-fifth of the length. This is the last nymph stage. In about five or six days the perfect insect crawls out of the nymph skin. In all of these stages the nymphs secrete globules of honey-dew several times larger than themselves, but the adult insects do not appear to secrete any, but instead void considerable quantities of a whitish excrement.

Figure 4 is a magnified representation of the mature insect. Nine or ten of them placed end to end, and about forty placed side to side would be required to measure an inch. The general color varies from a light scarlet to crimson, with black markings. The front wings are slightly tinged with yellow, the hind wings are quite transparent and more delicate. When the insects are at rest these two pairs of large transparent wings slope roof-like over their sides. As might be expected from the fact that in this

stage they are provided with wings and strong legs, they jump up and fly off at the least disturbauce; and as they can fly from tree to tree by taking advantage of strong currents of air, they are able to spread rapidly over considerable distances. They are provided with a beak with which they feed upon the sap drawn from the tissues of the leaves and tender twigs.

In three or four days after the mature insects are hatched procreation and egg-laying for another brood commences. These eggs are laid on the under side of the tenderest leaves near the mid-rib or on the leaf-stalk near the leaf, usually singly, sometimes several in a row or in a group. The weather now being warmer than in the spring, the eggs are hatched in from eight to ten days, the crimson eyes of the nymph becoming plainly visible through the shells near the larger end of the egg a day or two before hatching. It is not yet known how long they live in this mature stage under natural conditions; when confined in breeding cages in the house they lived for several days.

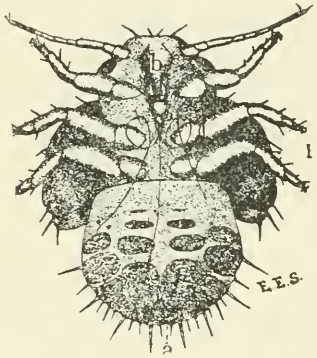


Fig. 3. *Full grown nymph, ventral view, a. anus; b. beak.*

Fig. 4. *Adult Insect.*

It has been ascertained that this year the number of broods was at least four. The adults that hibernated laid their eggs in April, and the adults of this brood made their appearance about the middle of June, and a new brood appeared about a month after, and so continuously during each month until about the 25th of September. The adults that appeared in September differed from those of the spring and summer broods, being nearly one-third larger, their coloring darker, the crimson changed to a dark reddish brown, the veins of the wings dark brown or black, and the front wings instead of being of a yellowish tinge were quite transparent with blackish shades of varying intensity in the cells. These adults are the hibernating form of this insect pest; they continue to feed until the leaves fall, and then hide in crevices of the bark, etc, where they pass the winter aud emerge in the spring to begin again the cycle of perpetuation of the species.

During all the stages of active existence they feed upon the sap of the tree; their feeding apparatus both as nymphs and adults consisting of a short, pointed beak, and three long thread-like setæ which move along grooves in the beak. When feeding the point of the beak is placed against the leaf or tender twig, the setæ inserted into the sap cells, and the sap drawn up through the beak. The nymphs elaborate most of their food into honey-dew, but the adults do not seem to secrete any honey-dew, but all their food beiug assimilated they void considerable excrement, much more than the nymphs.

The interesting question of how we can successfully combat this very destructive insect remains to be considered. Experiments carefully conducted during the past

summer have demonstrated that it is of no use to apply kerosene emulsion, undiluted kerosene, turpentine emulsion, turpentine undiluted, crude carbolic acid emulsion, sulphide of potash, double strength, concentrated potash, one pound to a gallon of water, nor benzine undiluted to the egg. Nor can the mature insects be destroyed by spraying the trees, for no sooner does the spray strike the tree than they take wing and fly off until they can return in safety; also spraying has but little if any effect on the old nymphs, when they are so enveloped in honey-dew that the insecticide cannot reach them.

But it was found that the young nymphs were very tender, that they succumbed at once under an application of kerosene emulsion containing less than three per cent. of kerosene, dying almost immediately after the liquid touched them. It will be seen from this that the best time to spray is early in the spring, just after the leaves have expanded, for at this time the first brood of nymphs will have been hatched and will not have become large enough to cover themselves with honey-dew; and if we can succeed in killing even seventy-five per cent. of this brood we have made a great reduction in the number of the succeeding summer generations. It has also been found that heavy showers of rain wash the honey-dew from the nymphs so as to expose them to the fatal effects of kerosene emulsion if it is applied immediately after, or so soon after that they have not become again enveloped in the honey-dew. The trees are in no danger of being injured by such a dilute emulsion as one containing only three per cent. of kerosene.

It is therefore important that fruit growers should very carefully examine their pear trees in the spring when the leaves are expanding, and search in the places where these insects resort for the newly-hatched, crimson-eyed nymphs, and if they are at all numerous lose no time in spraying the trees with the kerosene emulsion. If they are very numerous it will be advisable to repeat the spraying two or three times during the fortnight succeeding their first appearance. If thoroughly done at this time the destruction will be so great as to preserve the trees from any serious injury, yet it will be well to examine the trees frequently during the summer, and if they are still to be found return again to the spraying so that the hibernating brood may be so reduced in numbers as to be unable to multiply in sufficient numbers to work serious mischief the next year.

The writer is indebted for the knowledge of the life history of this insect enemy of the pear, and of the efficiency of kerosene emulsion as a means of keeping it in subjection, and of the time when spraying will be found to be most efficient to Mr. Mark V. Stingerland, whose careful observations and experiments are published in extenso in Bulletin 44, October, 1892, of the Cornell University Agricultural Experiment Station.

The writer would further suggest that in the event of the weather continuing dry, there being no showers sufficient to wash the honey-dew from the nymphs, and they are found to be present in full force, the pear grower might find it highly advantageous to shower his trees artificially with pure water from a force pump, thus washing off the honey-dew, and following this speedily with the kerosene emulsion.

Kerosene emulsion is made by thoroughly dissolving one quart of soft-soap, or one quarter of a pound of hard soap in two quarts of boiling water; as soon as this is done and while it is yet quite hot, one pint of kerosene oil is stirred in, and the whole violently agitated by drawing it into a syringe or force-pump and driving the liquid back into the kettle for at least five minutes, or until the whole mass assumes a creamy consistency, adhering to the sides of the vessel, not gliding off like oil. This will keep for a long time if placed in a cool, dark place. When wanted for use measure out the quantity taken and dissolve it in sufficient boiling water to make the amount of kerosene one-fifteenth part. If the whole is take the quantity of water required would be four quarts. This is Prof. A. J. Cook's formula, of the Michigan Agricultural Experiment Station. The Hubbard-Riley formula is much stronger of kerosene. It is half a pound of hard or soft soap, a gallon of boiling water, and two gallons of kerosene. These are to be combined in the same manner, and the emulsion diluted with water until the kerosene is reduced to the desired proportion.

REPORT ON PEARS.

Mr. D. W. Beadle read the following report of Committee : (See appendix II).

Mr. Beadle explained that the late, Mr. Dempsey was a member of the Committee, and Mr. Holton had been unable to meet. A letter was read from Mr. Holton, suggesting that the column headed cooking should be omitted ; the list, as at present prepared, being more liable to mislead than to assist. The Vicar is rated at 10, while a number of better pears, in Mr. Holton's opinion, are rated only at 8 or 9. Mr. Holton asked that his resignation as a member of the Committee be accepted, as he was not able to properly perform the duties, Mr. Beadle moved the adoption of the report.

The Secretary seconded the motion, and suggested that the meeting hear criticisms on any pear any person wishes to mention, not to go over the list one by one, as time forbids.

Mr. Hunter thought the Keiffer pear should be cut out of this list.

Mr. A. M. Smith : It is one of the best keepers in our district, and in Wisconsin has been so considered.

Mr. Orr asked if the Keiffer hybrid is the same ?

Mr. Smith : All the same.

Mr. Hunter thought there must be some confusion as between the Keiffer and the Leconte.

The Secretary : They are different in every way. The Keiffer is of very poor quality we all acknowledge, as a table pear. If has no place as a table pear, and ought not to have ; but if well grown it has a beautiful color, and certainly sells remarkably well until people get to know it. As a canning pear I believe it is not excelled.

Mr. A. M. Smith : I would not place Souvenir de Congres among Summer pears. It is as late with me as Flemish Beauty.

Mr. Blanchard : The Buffam should be struck out. It comes in with the Bartlett.

Mr. Pattison : My experience with the Bartlett is that it does not generally ripen till October.

Mr. Race : There is no object in striking a pear off the list, give it a low value.

Mr. Blanchard : We are o' 'ged to pick that pear at the same time as the Bartlett.

Mr. A. M. Smith moves that the Doyenne Boussock be put out of the list of autumn pears.

Mr. Beadle suggested that the words Summer, Autumn and Winter be struck out altogether, and that the names be put down alphabetically, because summer pears in the Niagara District are not summer pears down toward Trenton or up toward Muskoka

The Secretary : I would second Mr. Beadle's motion as to the adoption of the report, with the addendum that the list be re-arranged alphabetically.

Prof. Craig : The present arrangement by seasons is a very valuable guide to the planter.

Mr. Morris : Put them alphabetically, and the date when they ripen.

Mr. Beadle : The date when they ripen at Niagara is one, and the date of ripening at Ottawa is another.

Prof. Panton : Why not put a foot note saying this list is for Niagara District, and that for other districts allowances have to be made.

Mr. Morris : If this list is for planters it should go further and give something about the condition of the trees, and productiveness, and so forth. It is a little misleading in that respect. I will move that the report be sent back to the committee for revision.

The SECRETARY. That is throwing it off for a long time. Let the matter go out to the public, and let them criticise it.

Mr. MORRIS: Those varieties subject to disease, and so on, should be mentioned.

Prof. CRAIG moved that the report be accepted as it is, but the committee be not discharged, but stand over, to report next year and make such additions as have been suggested, be accepted, and a committee composed of Mr. Beadle, Messrs. G. W. Cline and W. H. Dempsey be reappointed to further consider this question of a pear list, with a special view of adding a column giving the season approximately and another giving productiveness.

Mr. RACE: That is a very practical suggestion.

Mr. M. PETTIT: I would suggest that G. W. Cline be added to that committee, to take the late Mr. Dempsey's place.

Mr. PETTIT, Winona, seconded Prof. Craig's motion, which was carried.

For the pear list, which constituted this report, see Appendix III.

GOOSEBERRIES.

Mr. BEALL (Lindsay) named, as the three most profitable gooseberries, Whitesmith, Pearl and Downing. He said: I am satisfied that these will produce more money than any three that I am aware of. I think we have neglected to bring this matter before our Association as we should have done for some time past. The gooseberry is certainly one of the most profitable fruits that is grown in Canada, I think there is more profit in it to-day than there is in grapes. Better financial results can be got from a quantity of gooseberries than from any other fruit grown.

Mr. RACE: The gooseberry has been a hobby of mine for a number of years, and I place the Whitesmith at the head of the list for profit. There is a general complaint against it for mildew. I never had any mildew in my garden on that berry; and I have a larger growth of bush, I think, than almost any man that I have seen anywhere in the Province, and my bushes bear heavier than any I have seen. I use no fertilizer now except ashes. I believe if you give the Whitesmith plenty of sunlight and air, and purify your soil beneath it every spring with a scattering of ashes, that it will prevent the mildew. That is all I have done for the last eight years. This year I was away from home a great deal, and did not do much in any garden, and neglected putting ashes beneath all my gooseberries; and this is the first year in nine years that there has been a specimen of mildew in my garden. This has proved to me that ashes prevent mildew. I sprinkle unleached ashes from half an inch to an inch in depth, extending for about two feet from the centre of the roots in bushes, and leave them during the summer time. My soil is a clay loam.

Mr. BLANCHARD: Pearl, Conn and Downing are the three that I have selected.

Mr. ORR: I have grown the Whitesmith for a number of years, and have treated them with ashes—not so heavy as you speak of—and have had a crop every year without mildew.

STATISTICS OF FRUIT.

The SECRETARY introduced the topic: "Could not the Bureau of Industries give a more complete report of the yields of the various fruits of Ontario?" Very frequently the question is asked: What is the quantity of the products of any fruit, the number of tons of grapes in any section, any county; and we are totally unable to give any idea of the amount of the products of strawberries or any other fruit. Some attention is given to the orchard in general, and to the apple in the report; and I do not see why more attention should not be given to the various other fruits. There is very full attention

given to agriculture. We have full report as to oats and potatoes and beans, and we can find out just what each county produces; but we cannot get at the figures at all to answer such questions regarding fruits. The collection of statistics is an important question to us, and if it would be at all practicable I am sure we would all be glad to have more attention given to the fruits in that way. I think probably Mr. James would say something to us in regard to that.

Mr. James: You will remember that last year this subject was brought to the notice of the Association, and some resolutions were adopted; and in accordance with the request of the Association at that time, I attempted this year for the first time to obtain some statistics in regard to fruit cultivation and fruit production If there is any fault in the matter I think you will have to admit that the fault lies not with us but with the fruit men themselves. In the first place it will be necessary for us to get the acreage, or rather the number of bearing trees of the various fruits in the Province. I sent out and got from the various directors of the Association lists of apple-growers. We attempted apples first. I got long lists, and sent out one thousand cards to apple-growers all over the Province. Now, from that list how many returns do you suppose I got? ["Fifty," "a hundred."] Well, I got just about 100. That is, one out of every ten men who were recommended by you as directors of this Association, replied to that card. Now, if we cannot get the fruit men to answer these questions, what are we going to do? That is the first difficulty; and I put that right before you just to show where we are met. Now, it would not be advisable to make returns from simply one hundred answers. However, I had taken the precaution among our regular correspondents to ask certain questions in regard to apples and other fruits; and thereby I got the material which was used as the basis of our reports in connection with the August crop bulletin, in which I gave a special section to the apple production of Ontario; and I put the probable yield in Ontario at three million barrels. Well, I have been pretty harshly criticised for that by apple buyers. The criticism has not come from the apple producers, but from buyers, who say that the estimate was away under the quantity. I suppose they thought the price might be affected somewhat by limiting the product. I might say, however, that some apple buyers of the Province thought that we were quite within the mark at that time. This estimate was based on some three hundred returns that we got from all over the Province. The later returns, which I hold in my hand, we have not published, and I am not quite certain whether we shall publish them or not. I want to consult some of the fruit growers in regard to it; these later estimates were made from returns from the fruit-growers themselves. If that estimate was too small it is not our fault; but it is from small returns made by the very men who were producing the apples; still, later returns are quite a bit larger. As I stated last year, I did not think we would be able the first year to get anything that might be considered satisfactory—you never can the first year; but now we have got something to work upon, and we hope next year, by going a little further, to get returns that may be a little more accurate than those this year. I will give you the returns I have here, and you may give me your opinion on them, as to whether they are too large or not. Lake Erie District, commencing at Essex and Kent and reaching along the north shore of Lake Erie, the average produced per tree we figured out at a little over three bushels. That of course is the most unfortunate district in Ontario this year for apples. We have returns here for pears, peaches, plums, cherries and grapes; but we have no time to go into those. Then Lake Huron—taking in Lambton, Huron and Bruce, which was one of the best apple sections this year—an average return of about six bushels to the tree, Georgian Bay, including Grey and Simcoe, about the same. The Central Counties in the west, what we call the West Midland Counties, a little under six bushels per tree. Lake Ontario, commencing at the west end of Lake Ontario and stretching through to Prince Edward County, between five and six St. Lawrence and Ottawa, about five. The East Midland about five; and the Northern Districts a little under four. This makes an average over the Province of five bushels per tree. That would give an estimate, if the number of trees that we have returned is correct, of about ten million barrels in Ontario. Now, some stated before that our estimate must be entirely too low on account

of the enormous export of apples this year. I do not think that is a fair ground upon which to criticise our returns at all, for this reason: I think a large proportion of the exports of apples made from Ontario this year have very seriously injured the reputation of Canadian apples in the Old Country markets. (Hear, hear.) For instance, you saw the letter in yesterday's *Mail*, which was simply a sample of very many that have come to us indirectly. I have had a large amount of correspondence with Old Country producers in trying to get at these special statistics; and the complaint coming to us from various sources is, "inferior fruit." An enormous quantity of apples have been shipped to the Old Country that ought never to have left the farm at all. Here is one statement that was made: "Many of the apples were worm-eaten, gnarled and mis-shapen." I have here the market sales of one of the largest consumers in London of Nov. 23rd; and apples are here quoted as being sold at 3s., 2s. 9d.; 5s., 9s., and if I am not mistaken I have one return of 1s. 9d. a barrel. Mr. Allan tells me it costs about 75 cents to ship apples to the Old Country. Taking the average, you will find that whereas there are some apples that are bringing as high as 17., 18s. and 20s, there are large numbers bringing 5s., 6s., and 7s., probably an average of about 8s. per barrel. Then here are two statements from Woodall & Co., of Liverpool, Nov. 12th, which show that a large number went over there early, therefore they were not winter fruit, or else they were winter fruit that went undoubtedly too early—which I think you will find is correct—as well as that large quantities were sent that should not have gone at all. For the week ending Nov. 12th the arrivals at Liverpool were 49,000 bbls; for the corresponding week last year they were 52,000 bbls.; and yet at that time 23,000 bbls. had arrived over the year before; so that although the arrivals during two or three weeks then were less than they were last year, nevertheless the total arrivals exceeded those of last year; therefore the early arrivals this year must have been far in excess of last year.

Mr. James here read further extracts from English correspondents. Showing the poor quality of the apples shipped.

This large quantity of poor fruit has been sent away to the detriment of those of you who have been sending good fruit. I think we have shipped a larger quantity of fruit out of the country than should have gone this year. Now, from what you know of the different sections, how does our estimate strike you—the average estimate of five bushels per tree over the entire Province—the large quantities being obtained from Huron, Bruce, Grey, Simcoe, the Counties of Durham, Northumberland, Ontario. I am not quite sure whether it will be wise to publish these returns in full, or to use them as the foundation of our figures next year. The total number of pounds of grapes we have figured on this year is 62 million pounds for Ontario; that would be 31 thousand tons.

Mr. Beall: When you spoke of the average per tree in the circular I got from you, you said "average per bearing tree."

Mr. James: Yes; trees that have come to the bearing age.

Mr. Caston: Some bear early, but bear a very small quantity. What we call full bearing is bearing 1½ to 2 barrels.

The Secretary: What was the number of barrels, according to your last estimate, for the Province?

Mr. James: 3,384,000 barrels at first. This one gives us about three times that quantity. Now, who was right? When were the farmers right in making their returns—then, or now?

The Secretary: Would it not be possible to get at that from the actual statement of the number of barrels shipped from different points, and soon, so as to get at the actual quantity produced?—because when you multiply those two numbers together—the number of bearing trees and the supposed average quantity that each tree produces—that is another only approximate estimate. When you get these two together it seems to me it would not be quite as safe as if we could get at the quantity really sent away from each district.

Mr. JAMES: To do that you have to wait till after your work is done. Of what consequence it to you, then? You want to know it before the shipment is made.

Mr. E. D. SMITH: It strikes me that the estimate is immensely too high. It may have occurred in this way:—You found the number of trees and multiplied it by the bearing. Now, more than one-half of the bearing trees had not a single apple on them.

Mr. JAMES: That is for your section?

Mr. SMITH: Yes, and it would apply to the Province.

Mr. JAMES: You see from this discussion the difficulties in the way.

Mr. SMITH: I know it is difficult to get answers to enquiries.

Mr. JAMES: It is an easy matter to get, for instance, the wheat returns. We can get that accurately by two or three methods, and we feel satisfied that our ways of getting the wheat returns are quite accurate.

Mr. SMITH: I suggest that you ascertain the amount of the product in a given year from actual shipments and sales, as near as possible; and then in future years an estimate could be made from that at such a percentage, higher or lower.

Mr. JAMES: We tried for two or three years the plan of percentage, and it upset matters entirely. You would be surprised how few men would handle the question of percentage properly.

Mr. PATTISON: Does your estimate mean only those apples fit for shipment, or does it include apples of a second quality?

Mr. JAMES: This includes the apples produced in this country.

Mr. E. D. SMITH: What makes me think the estimate is high is that the total shipments for this Province will not exceed half-a million barrels.

Mr. JAMES: How many barrels of fruit does the average family use?

The SECRETARY: Say five barrels—that is a low estimate.

Mr. JAMES: How much is wasted in the country?

Mr. PATTISON: My neighbor calculated he had 200 barrels. He shipped 30. The other portion he fed to stock. I think in our section the proportion that was not shipped was a great deal larger than the proportion that was.

Mr. JAMES: I was astounded when I got out the figures. I would not put them in the last Bulletin.

Mr. MCMICHAEL: I think one reason why that report would be misleading would be that many of your correspondents have given the trees that were of bearing age. Perhaps one-third of the trees in the orchard were not actually bearing; and then in making up your report you take the full number of trees in the orchard.

Mr. JAMES: No; we asked first for the trees—those that were bearing and those that were non-bearing. We figured out 66,000 bearing apple trees, and 2,200,000 non-bearing.

Mr. PATTISON: It would be better to use another term. Instead of using the word "bearing," put it "for ten years planted."

The SECRETARY: I think we ought to express our approval of this work. I really think that it promises to be of great benefit to the fruit growers of the Province.

On the suggestion of the President the matter was left till after dinner for action.

REPORT OF COMMITTEE ON INSPECTION OF FRUIT.

Mr. A. H. PETTIT reported on behalf of the Committee on this subject. This matter was pretty well discussed at the last meeting. The Bill that has been framed was of such a stringent nature that it was considered it could not be put in working shape; and we asked that the Bill be amended in accordance with the plan submitted to and adopted by the meeting last year.

Your Committee on Fruit Inspection beg leave to report: That they, in connection with a delegation of the Central Farmers' Institute of Ontario, waited upon the Government and presented the wishes of this Association.

An Act was framed by the Government and passed, but the provisions of the Act were of such a stringent nature it was not considered workable. It read as follows:

APPLES.

"109. In the inspection of closed packages of apples, the inspector shall open not less than one package in every five; and if the manner of packing is found to be fraudulent or unfair, then he shall open all the packages put up by the shipper of such package:

"2. Every package found to be fairly and properly packed he shall brand as 'No 1 Inspected Canadian Apples,' or 'No. 2 Inspected Canadian Apples,' as the case may be, if fit to be so branded:

"3. The inspector shall also examine the varieties of apples submitted for inspection, and shall correct the nomenclature if incorrectly marked, or if the name of the variety is not marked he shall cause it to be marked on the package:

"4. The inspector may charge a fee of ten cents for each package inspected by him, and such charge shall cover the cost of opening and closing the package.

"110. No. 1 inspected Canadian apples shall consist of perfect specimens of one variety, of uniform size, and, in the case of a coloured variety, of fairly uniform colour, and shall be free from scab, worm-holes, knots and blemishes of any kind:

"2. No. 2 inspected Canadian apples shall consist of specimens of one variety, free from scab, worm-holes, knots and blemishes of any kind, but not of uniform size or colour.

"111. The Governor in Council may make regulations for the inspection of cheese and the branding of packages thereof, and may make a tariff of the fees and charges to be allowed to the inspector for such inspection." (General Inspectors' Act, chapter 23.)

We wanted a well defined standard of excellence, such as was defined by this Association, but we are hardly prepared for perfection itself, such as is embodied in the Act.

We would therefore recommend that the Bill be amended in accordance with your first defined standard, as one calculated to promote the best interests of trade and place it upon a better basis.

The following extracts are from the Canadian Horticulturist for 1892, volume XV., p. 128, the organ of the Association, and may assist in further explaining this subject:

Apple Inspection.

The solid advantages which might accrue to Canadian fruit growers through a proper inspection of fruit intended for export, has been twice discussed at meetings of our Association. As things now are, it is impossible to sell for cash f. o. b. to an English buyer, because he cannot be satisfied of the quality and grade until the apples have crossed the ocean and come under his personal inspection. In this way the Canadian grower or shipper is entirely at the mercy of the English buyer, who has the goods in charge.

If it is possible to plan some definite system of grading, so that a distant buyer would know, from the mere mention of the grade, just what kind of stock was being offered him, there is not the slightest doubt that apple growing in Canada would be a much more remunerative occupation than it is; for the Canadian grower could sell for cash at his own home for the full value of his stock, and a Canadian shipper would always know exactly what margin he was allowing himself on any lots he was handling.

By reference to our combined reports for the years 1890 and 1891, it will be observed that this subject has been pretty fully discussed, and that a committee was appointed to urge upon the Minister of Agriculture for the Dominion, the importance of a system-

atic inspection and branding of Canadian apples for export. We have drawn up an outline of the duties that would be expected of such an inspector, and defined what would be understood as meant by grades No. 1 and No. 2, expressing as nearly as possible the sense of our meeting on the subject, and submitted it to the committee. As it soon may be presented for consideration at Ottawa, we have thought best to publish the outlines of the inspector's work, in order that the committee may have the benefit of criticisms from any of our readers.

Duties of the Dominion Apple Inspector.

1. To make headquarters at the most important shipping port of the Dominion, probably at Montreal, during the fall, and at Halifax during the winter months.

2. In the inspection of closed packages of apples, the inspector shall open out as many of the packages, say, one in ten, less or more, as shall enable him to judge fairly of the grade, and of the manner of packing.

3. Upon satisfying himself of the grade, he shall apply his inspector's brand, marking them "Canadian Apples, No. 1, inspected," or No. 2, as the case may be. There should be no No. 3 inspected; any such stock going forward should go without the inspector's brand.

4. The inspector shall have a special care to avoid branding any package, unless he is satisfied that it is honestly packed through and through. He may refuse further attention to any carload of apples, which he finds faulty in this regard; and the shipper of such carload shall forfeit the privilege of having any further attention from the inspector for the current season.

5. The inspector shall hold himself in readiness to inspect all fruit within one or two days after receiving notice, and engage a sufficient number of assistants to accomplish the work speedily, without delaying the loading of a cargo.

6. No person shall be obliged to have his fruit inspected, but, if he desires the benefits of the higher prices which will be eventually secured by the inspector's brand, he will be expected to pay a fee of at least one cent per barrel for each barrel branded by the inspector.

7. On account of some lots going by Suspension Bridge and New York to Great Britain, and other lots going to Chicago, the inspector should have, as soon as practicable, one or two trained assistants in Western Ontario during the apple season, ready to go when called upon, to any station for the inspection of car-lots of apples which are ready for shipment.

8. The inspector may make arrangements, wherever practicable, to do the work of inspection at railway stations where apples are being loaded, providing a certain number of car-loads are in readiness.

9. The inspector shall also make it his business to see that all lots of apples branded by him are properly named as well as graded.

10. The inspector shall take especial care to make known to growers generally his address, and business, and also to give them a full description of the proper methods of packing and grading as to the No. 1 or No. 2 brand.

11. Grade No. 1 shall consist of well-grown samples of the variety named, somewhat uniform in size, well-shaped, of normal color, free from scab, worm holes, curculio knots, etc.

12. Grade No. 2 shall consist also of apples free from scab and worm holes, but which, for lack of uniformity in size, deficiency in color, abnormal shape, or for any other reason, are considered by the inspector unfit to be graded No. 1.

13. In addition to the ordinary grades No. 1 and No. 2, the inspector may use his judgment in the use of one or more stars, in cases of very fancy stock in his opinion having especial merit.

14. Any inspector proven guilty of receiving compensation for his work from interested parties, and thus being in any way influenced to favor any particular shipper, shall at once forfeit his position, and be subject to a heavy fine.

15. It might, perhaps, be well, the first season, to have little or no fee for inspection until the benefits of the work begin to be appreciated, and growers begin to find that they can sell for cash f. o. b. to distant buyers their inspected stock, on account of the confidence gained by the brand.

The following extract is from the same volume of the journal, p. 292, appearing after the amendment of the Act :

We have just received a copy of the "Act to Further Amend the General Inspection Act," to which has been added a section providing for the *inspection of apples*. This, of course, was in reponse to the request of our Association, made through a committee to the House of Commons at Ottawa. Unfortunately, the wording of this amendment has been done without consultation with the members of our committee, or with any apple grower; and the standards have been made so absurdly exacting that it will be absolutely impossible for our packers to come up to the requirements. In consequence, no one will be likely to attempt to comply, and the Act will become a dead letter.

Then follows a copy of the amendment.

Now let us look into the matter. To open one barrel in five may be necessary in the case of shippers that are known to be somewhat careless, but we are of the opinion that, where the inspector has become acquainted with the character of a certain packer, it is not at all necessary that he should open more than one barrel in ten, taken at random. To open one barrel in five would mean at least thirty barrels in a car-load. Now this would cause too great a delay of a shipment of apples, at Montreal, or at whatever port they were inspected and transferred to the steamer. The inspector should not be obliged by the Act to open more than one barrel in ten.

It is all right to correct the nomenclature, if incorrectly marked; but to make it compulsory that every unnamed lot should be named by the inspector might frequently give him a task which no human being could satisfactorily accomplish.

The fee of ten cents a barrel is too high, at least while the benefits of inspection are as yet unproved. The Dominion Government should provide for the larger part of the work; a small fee of two or three cents would be enough for the shipper to pay, and, if found necessary, after the benefits are fully appreciated, the fee might be raised.

In section 110 we read that No. 1 shall consist of perfect specimens, Now perfection is a lofty word and is a state not easily reached either by apples or men. Had there been a modifying adverb it would have been all right, but no packer would be able to submit his apples to inspection, with any confidence, if the inspector is to apply this word in its strict sense. It provides that the apples are to be of a uniform size. "Nearly uniform" would have been a more suitable phrase. How would it be possible to put up a barrel of apples of *exactly* one size? Perhaps it is well enough, in the case of No. 1, to say that they shall be free from blemishes of any kind, but in the case of No. 2, the same provisions are made, making scarcely enough distinction between the two grades.

That a properly arranged system of inspection, for Canadian apples which are going forward to Great Britain, would result in immense benefit so apple growers in Canada, seems well assured. We have lately received a communication from an extensive dealer in apples in Liverpool, England, who says that he is pleased with the prospect of such an Act being in operation, and that a reliable Canadian brand would much encourage our export trade. What a pity that the whole thing is inoperative, for this season, on account of such stupid legislation. It will be necessary that this whole matter be carefully discussed at our next meeting, at Brantford, and the secretary authorized to make representations to Ottawa concerning these egregious faults, in order that they may be remedied before another fruit season.

Mr. Caston moved that the report be accepted and referred to the afternoon session for discussion.

The Secretary urged that the matter be disposed of at once, on account of shortness of time.

Mr. A. M. Smith moved that the report be adopted without discussion, and referred to the Legislative Committee for action. Seconded and carried.

FRUIT STATISTICS.

The SECRETARY moved that Messrs. E. D. Smith, A. McD. Allan and T. Carpenter, be a committee to make suggestions to Mr. James, Deputy Minister of Agriculture, and to advise with him in relation to the collection of fruit statistics.

Prof. CRAIG: I would second that motion. Mr. James came here for suggestions, and I think there are practical fruit growers who are qualified to give them.

Mr. JAMES: One or two have said that they thought that estimate was very far astray, now, we have about 200,000 farmers and agriculturists in this country. The estimate would require an average of fifty barrels apiece.

Mr. A. McD. ALLAN: Looking at the County of Huron, I am perfectly safe in saying 200 000 barrels for shipment this year, and 200,000 barrels besides that for the home market use, for family use, for the stock, and for the evaporator.

The motion was carried.

OBITUARY COMMITTEE.

The SECRETARY moved the appointment of Messrs A. M. Smith, Beadle and Craig as an obituary committee. Special notice should be made of the decease of Mr. P. C. Dempsey, one of the esteemed directors of the Association.

Mr. A. H. PETTIT seconded the motion, which was carried.

On motion of Mr. CASTON the Convention adjourned to meet at 1.30 p.m.

THIRD DAY.—AFTERNOON SESSION.

Convention resumed at 1.30 p.m.

APPLES AND APPLE POMACE FOR STOCK.

Mr. H. R. NIXON, (St. George) said: I am not a very large fruit grower in any line but apples. I raise a great many apples, and I am a pretty large stock raiser as well; so, running those two lines in connection with other branches of farming, I have fed a great many apples to stock. The first valuable lesson I learned in relation to feeding apples to stock was about six years ago. We had a very large apple crop, and I was at that time shipping milk to Hamilton. I had a large dairy, and thought I would try the experiment of feeding apples to the cows. My contract with the milk dealer required that I should feed no turnips to the cows. I had always fed turnips pretty largely, and I told him I could feed turnips and he wouldn't know it. However, he thought that was not possible, so I had to agree to feed none during this contract. So we started feeding apples—first very lightly, about a peck to a cow, and we found it increased the yield of milk considerably. Then we got up to about half a bushel and three pecks per cow, and we found them very valuable in increasing the yield of milk. When I got my March payment of milk the dealer wanted to know why I sent such good milk during the latter part of November and December, and the milk had not been up to such a good standard since. I told him I did not know,—did not think of the apples. "Well," he said, "We haven't had as good milk from you since the first of January as we had previous to that. That started me thinking; and when I came to consider the matter thoroughly, I found that just on the first of January, my supply of apples had given out. He said the milk had tested one-half per cent. higher during the month of December than it did later on. I could not attribute that to any other cause than feeding apples to the dairy cows. I consider apples fully equal to any kind of roots for stock, no matter what kind of stock you have on the farm—horses, pigs or cattle. I think they are far preferable to any roots for pigs. A neighbor of mine tried feeding his pigs one-quarter less peas and more apples, and he found they fattened faster. It is a mistake to allow apples or wind-falls to lie around and rot. I never do it. I give my boys three cents a bag for picking them up,

and they are always glad to do it. Some Saturdays they make 50 cents and don't work half the time. I never allow any apples to go to waste, but have fed them ever since my Hamilton experience. As regards feeding pomace to stock, I have operated a cider mill all my life until about four years ago, and made a great quantity of cider, and handled a great quantity of pomace, and always considered in the dry season, when we had no fall pasture, that the pomace repaid us well for all the work in making cider—though we got a profit as well. I never tested the pomace quite as thoroughly as I have the apples, in regard to direct increase of milk; but as soon as we started to make cider we started to feed our horses on pomace in connection with other feed. We never shortened off the other feed, but gave them a peck of other grain and a peck of pomace every day; and the horses always put on a sleek coat at once. We would notice the difference immediately—they would always look shiny as if they had been fed on oil cake, or something like that. One season we took our horses in off the pasture, and put them to hard work in August; and as soon as we started to make cider, we began to feed pomace and they gained in condition and showed it at once in their coats looking sleek, and the hair having an oily appearance. The next season I sold out my cider mill, and contracted to buy pomace at ten cents a load; and we drew it to the farm about a mile distant, all the fall, and thought ourselves very well repaid for money and trouble. The season after that a farmer near by, thought I was having a snap on the pomace, and offered more for it. He had a large stock of cattle, about 30 head, put into his hands by the sheriff, to hold for two months, and he had them in a small field, about ten acres, and fed them on nothing but pomace, and they gained in condition so that at the time of the sale they looked fine—though there was no more pasture on the field, after the first week, than there is on this floor. That was a very striking illustration of the advantage of pomace as feed.

Mr. HUNTER: Did you find any difficulty with the teeth of the cattle fed on either apples or pomace?

Mr. NIXON: No, not the least, with apples or pomace or ensilage—which is sometimes objected to on that account. When I first began feeding apples I was very nervous about them choking, and ran them through a pulper for safety; but we tried them with whole apples, and never had the least difficulty in choking. Of course apples should be fed moderately at the start.

Mr. BEADLE: Do you see any difference between sweet and sour apples?

Mr. NIXON: Yes, I would certainly prefer sweet apples; but I would like to have the apples ripe. It is a good thing to have the apples gathered some time before they are fed, so that they will get mellow.

GRAPES.

This topic was then taken up: "What Grapes yield the most tons of fruit per acre?"

Mr. ORR: I would say Niagara.

Mr. ALLAN: I will back that up.

Mr. LEE: I have no objection if you confine that to the Niagara Peninsula. If you go outside of that district you find that it is cut off, more or less. The Niagara will not grow successfully here. Niagara is all right for Hamilton and below; but when you rise above the mountains I would object to it, and take the Concord.

Mr. HUNTER: I have had very little experience in grapes, but I would suppose Concord would have the greatest amount of yield for our section.

Mr. ORR: I have been surprised to learn how well the Niagara was doing at different points. A gentleman from Galt told me the Niagara there was bearing very abundantly. A gentleman from Goderich said it was doing very well there. We have been surprised at it ripening so soon as it does.

Mr. NIXON: I think the Concord would be far the heaviest bearer with me—about ten miles from Brantford.

Mr. MITCHELL, (Innerkip): Ours is a very poor district for any kind of grapes. The Concord gives us a larger yield than the Niagara. I think for yield of ripened grapes we prefer the Worden in our district.

Mr. DEMPSEY: I think the Worden and Concord are best yielders with us. The Vergennes is next to the Niagara.

Mr. ORR: We are obliged to take a large amount of the crop of the Vergennes off before we can get a yield.

Mr. TURNER: Does the Worden drop the fruit in this district?

Mr. E. D. Smith: I don't think it does with us. I had Wordens hanging on this year till all the rest of the grapes were picked—and good then.

Mr. RACE: Don't you find a difficulty in getting enough wood with the Worden.

Mr. SMITH: Not with the Worden.

Mr. TURNER: The grower I alluded to uses a large amount of wood ashes. Perhaps that has a detrimental effect.

Mr. ORR: The cause of the fruit dropping is that there is too much matured on the vine. Take off the fruit; and if you find it drops with ease, take off more next time, and you will get a better quality of fruit, and just about as much.

TREASURER'S REPORT.

Mr. WOOLVERTON read his annual report as Treasurer, which was adopted on motion of Mr. M. Pettit, seconded by Mr. Turner.

TREASURER'S REPORT FOR THE YEARS 1891-92.

RECEIPTS.	$ c.	EXPENDITURES.	$ c.
Balance on hand last audit	120 51	The Canadian Horticulturist	1,604 19
Members fees	2,102 24	Salary	1,033 40
Government grant	1,800 00	Chromo lithographs	388 00
Advertisements	361 11	Directors' expenses	312 10
Bound volumes	56 34	Plant distribution	225 25
Back numbers, etc.	46 58	Express and duty	190 68
Petty cash	1 10	Postage and telegrams	133 34
		Printing and stationery	124 11
		Commission	112 29
		Stenographer	66 00
		Electrotypes	65 34
		Committees	23 85
		Auditors	20 00
		Exchanges	12 28
		Discount and interest	12 27
		Russian exchange	6 00
		Care of rooms at meeting	5 00
		Balance on hand	153 78
	$4,487 88		$4,487 88

We, the undersigned auditors, having examined the various books of accounts kept by your secretary-treasurer, and carefully proved them by comparison with the vouchers, have pleasure in testifying to their correctness and to the careful manner in which the books have been kept.

JOHN M. DENTON,
W. M. ORR, } Auditors.

NOMINATIONS.

The PRESIDENT named Messrs. A. M, Smith and Prof. Craig to act on the nominating committee.

The three other members of the committee named and adopted by the convention were : Messrs. Dempsey, of Stratford ; Race, of Mitchell, and Turner, of Cornwall.

REPRESENTATION ON AGRICULTURAL COLLEGE.

Mr. CAVERS : In accordance with notice of motion given yesterday, I beg to move my resolution relating to the Agricultural College, Guelph. Many members have been considering the matter since the meeting in Hamilton last year, when the same matter was suggested by myself ; but it was then found impracticable. My object in bringing this matter up is to endeavor to bring this Association into closer relations with the Ontario Agricultural College than have hitherto existed. As is well known, the College is in a very prosperous condition as regards general form. The horticultural interests have not had very much attention so far ; but having acquired some additional ground it is in a better position to do some experimenting than it has hitherto been. The question of an experiment station comes up in this connection. The climate of Guelph is not the most favorable for experimenting on fruits, except those that are of the hardiest character. At the same time, it is the agricultural college of the Province, and it seems to me it should be the centre of all the experiments made in any kind of horticulture or farming, having regard to provincial interests ; and what I would like to see would be that in course of a little time, by the exertions and influence of this Association on the Advisory Board with our Minister of Agriculture, that at least one sub-station should be established in close relation to the Ontario Agricultural College, but situated in a more favorable locality for testing new fruits, vegetables and nursery stock. I therefore beg to move :

That, in the opinion of this meeting of the Fruit Growers' Association of Ontario, the horticultural interests of the Province are of such importance as to entitle these to be specially represented on the Advisory Board of the Ontario Agricultural College ; that the President and Secretary be a special committee to bring this matter under the notice of the Hon. the Minister of Agriculture ; and further, that this meeting respectfully recommends the following names of members of the Association, viz.: A. H. Pettit, Grimsby ; L. Woolverton, Grimsby ; T. H. Race, Mitchell ; A. M. Smith, St. Catharines ; James Goldie, Guelph, and D. Nicol, Cataraqui, as a suitable list from which might be selected representatives of the horticultural interests of the Province on the said Advisory Board.

You will understand that the affairs of the Ontario Agricultural College are directed to a certain extent by the Deputy Minister, who is present with us, and seven other gentlemen. These latter are principally representative men in general farming—cattle feeding, raising grain, etc.—but I think no one of these seven has any special interest in horticulture—either in fruit growing or in nursery growing ; and my object is that two or three members of this Association should be added to the Advisory Board, or that they should take the place of two or three of those gentlemen who are already on the Board. I have not asked any member to second the resolution ; I hope some member will second it, so as to bring it before the meeting in proper form.

Mr PATTISON : I have much pleasure in seconding it.

Mr. MORRIS : Perhaps it is not very well known that some few years ago there was a committee from this Association that was appointed to take part in the management of the horticulture ; and I believe it was considered that they did not make a success of it, and through that means it was discontinued. At present they have a horticulturist, and men at the head of different departments who are paid large salaries, and I do not see why we should not leave that work in their hands and let them become responsible for it. The suggestion in the resolution would add very much to the expenses of the College, and I do not believe the government would agree to it.

Mr. Allan: Placing one upon the Advisory Committee would not add very much expense. Practically, in some ways they have had advice of this description on several occasions past. The matter Mr. Morris refers to I remember very well. It is now ten years ago; and there are very good reasons why that work was not successful. I believe the same thing could not be repeated with the same results. They are in better shape there now; and I believe with one—or at most, two men—on the Advisory Board, they would now be in a position to carry out experiments that they could not have done in former years. It was simply an unfortunate thing at the time the orchard was planted there. I was there at the time; looked the land over, and picked out a place where the experimental orchard should be planted; but Prof. Brown at the time said that it was impossible to get that particular piece of land, and pointed out a piece on the western side of the gravel road and said that it was the only available field. I said: "Very well; that settles it in the meantime, because it will take a year to properly under-drain that particular field to make it in any way fit for the purposes that we want." However, thinking that he knew more than we did, he proceeded to have it planted, with the results that we predicted—that the orchard never would be a success. It never has been. But that thing would not be repeated, I am satisfied; and things are now in much better shape to prosecute work of this description properly. Other matters are brought into the resolution, connected with experiment station, etc. I have had some conversation with the Minister on this subject, and also with one or two of the present members of the Advisory Board; and at present there is no possibility, that I know of, of making any change in that Advisory Board so as to allow extra members; nor is there any vacancy on the Board—in fact, one of the members gave me to understand that there was so little for the Board to do in that way that, comparatively, they were not required.

Mr. Orr: There is a committee appointed by this Association that is looking to having an experimental station for horticulture in the southern section somewhere. Now, to associate that with the Agricultural College I am afraid would not be advisable. Guelph, as a point for testing fruits for the southern section, is utterly worthless. I think we don't want the matter in that shape. I think we are looking to the time when we will have an experimental station of our own, and be entirely independent of that institution in that connection. Guelph is all right for agriculture, but no use for horticulture.

Mr. Beall: Prof. James at the last meeting of our Association made a suggestion that I think was the wisest thing said there. It would, I think, cover all the difficulties connected with our present system of experimenting. It is to furnish trees or plants, as the case may be—to buy them in comparatively large quantities—and send them to different persons who could be depended on in different parts of the Province; thus making perhaps a hundred different experiment stations without any expense whatever more than the cost of the trees themselves. I cannot see the slightest good that can result to the Province at large from an experimental farm, say in Hamilton, or somewhere not far from Hamilton, or Grimsby, or somewhere in that direction. I do not see how they can experiment for the benefit of those who are in the northern portions. What necessity is there for an experimental station for a few persons just where we know almost everything will grow?

Mr. James: The point as to experiment stations has—or should have—nothing to do with the original question. Perhaps a word here may be useful. The Advisory Board of the Agricultural College is appointed by the Government to advise with the Minister in regard to the teaching and experimenting carried on there; and those men have been chosen from different parts of the Province. They are called together at least once a year, and spend two days at the College looking over the institution and its work; and on account of their wide range of information and experience, they perhaps are able to suggest certain things that would not occur to a man whose experience was limited simply to one locality. They are simply paid for the one or two days that they are there, and the traveling expenses. The expense of course is not very large. They have nothing to do with the question whether an experimental station will be there or not. That does not enter into it at all, and should not be connected with it, in my

opinion, but simply whether they can increase the efficiency of that department. Whether the Government would add to that Board or replace one by another I do not know at all.

Mr. E. D. Smith: It is altogether astray to imagine that this experimental station in the southern part of the Province would be for the benefit of a few persons only. It would benefit those who grow 99-100ths of what is put on the markets of this country; while the station at Guelph would not. If they are going to conduct experiments in fruit at Guelph, then certainly a fruit grower ought to be on the Advisory Board.

Mr. Cavers: The question of an experiment station really does not come in under this resolution except in a very indirect way; and it seems to me it advances the idea of the experiment station rather than otherwise, because this Association, if represented on the Advisory Board, must surely have more influence with the authorities in connection with the Agricultural College than when the Association is not represented at all. I hope the experiments at Guelph may be enlarged; but even so, they cannot be of great interest to fruit growers of Grimsby and Niagara, and along Lake Erie counties. I hope there is room for the experiments at Guelph and for the sub-station somewhere in the Niagara Peninsula. The idea is not original at all, In the State of Michigan the chief experiment station is pretty near the centre of the State, in connection with the Agricultural College, and the chief fruit experiment station is near the south-west. All the purposes that the fruit growers can possibly require can be served by sub stations, as it is in several places in the United States.

Mr. Orr: We have an experiment farm at Ottawa; we have one at Guelph for the northern section; let us have one in the south for the fruit-growing section.

Mr. Cavers: The institution at Ottawa belongs to the Dominion as a whole. It is intended to further the farming interests of the whole country, and by sub-stations in the several provinces. What we have to deal with chiefly is the Provincial, not the Dominion institutions, though the Dominion institution is doing excellent work for the horticultural interests of this Province.

The President: My view would be this—that one matter would facilitate the other. If we can improve the present system of Guelph in reference to experiments in horticulture, it ought to be a benefit not only to some portions lying adjacent in the southern belt, but also greatly facilitate the northern portion Again, if the authorities there felt that their location is not suitable for the southern belt of Ontario, there might be a branch established from which it would fulfil the purpose. Now, I have heard northern men expressing the same view of the situation at Guelph—that it is not really a suitable place even for the very northern section of the Province all along the Georgian Bay and Huron districts. They have a splendid fruit section there—much superior, I would think, to the section at Guelph, and they might require an additional branch in that portion of the Province, even further north. I do not wish to say anything to injure either cause, but would like to see them work together and help each other.

The resolution was put and carried.

FRUIT DISPLAY.

Mr. Morris read the report of the Committee on Fruit Exhibit at the Convention, and moved the adoption of the report. Carried.

The Committee on Fruits on Exhibition beg to report as follows: L. Woolverton exhibits very fine samples of Cranberry Pippin, Roxbury Russet, Canada Baldwin, Blenheim Pippin, Ribston Pippin, also fine specimen apple from British Columbia, said to be a seedling and having a strong resemblance to Canada Reinette.

The next collection a very attractive one by W. S. Turner, Cornwall. La Rue, or Baxter, in size and appearance leads the well-known King of Tompkins in size and appearance, and of sufficient firmness to be a good shipper. Quality fair. Also fine samples of Bourassa, Wealthy, Pewaukee, Fameuse, Golden Russet, Blue Pearmain Shiawassee Beauty.

Professor Craig of the Ottawa Experimental Farm exhibits an interesting collection of new Russian and hardy native apple seedlings, altogether twenty varieties, we place at the top of this list McMahon White for size and appearance, and Belle de BosKoop for flavor, firmness and keeping qualities.

T. H. Race, exhibits nine varieties of apples, one of which Olivers' seedling deserves special mention. It is grown in Hibbert, South Perth. Tree said to be strong grower, and very productive of evenly sized fruit. The apple is large, light red, of good quality and from the specimens produced evidently a fair keeper. We heartily recommend this variety for propagation.

E. B Edwards, Peterboro', exhibits beautiful samples of Blenheim Pippins. Their uniform size, freedom from spots, and excellent dessert qualities, make them worthy of this highly esteemed apple, and grown at Peterboro, shows that they can be cultivated successfully in northern localities.

Seedling apple shown by S. C. Wait, St. George, lacks size and quality for profitable market purposes.

In pears a very fine specimen, President Druard, exhibited by W. M. Orr and five varieties by A. M. Smith, St. Catharines, as follows: Clairgeau, D'Anjou, Lawrence, Mount Vernon, Josephine de Malines.

E. Morris.
W. S. Turner.
J. D. Stewart.

ELECTION OF OFFICERS.

Mr. A. M. Smith reported from the Nominating Committee. He said: Most of you are aware that two years ago we adopted a Presidential term of one year; but circumstances have occurred which I think render it very necessary for the Association to either break or waive that rule. Our present President, as you know occupies the position of Superintendent of Fruits at the coming exhibition at Chicago; and we want to strengthen him in every way we can, and we believe that by occupying the position he now holds as President of this Association, he will be in a position to do more for our Society and for the country at large than he would in any other way. We have therefore nominated him as our President for the next year.

The Secretary, at the request of the President, took the chair, and the name of President Pettit was put to the meeting and carried unanimously.

The President: I would like to say that I feel very much flattered and very highly honored by being placed in the chair for another year. I must say that I have a very responsible duty placed upon me during the past season as your President. As I said in my address, it was with a great deal of doubt in my mind that I accepted so responsible a position as the superintendency of the fruit exhibit at the World's Fair. I have put forth my best efforts up to the present time, and I look to you to day to strengthen my hands during the coming season, so that Ontario may at the World's Fair stand where you and I and every Canadian wish to see her—at the head of all other countries in the world. (Hear, hear.) While you honor me by placing me in the chair of this the most active organization of the kind on the American continent, I ask you to strengthen my hands in every way that you possibly can. (Applause.)

The remainder of the officers suggested by the Committee were elected without debate. The complete list of officers appears on page 2.

COMMITTEE ON GRAPES.

Mr. G. W. Cline, Chairman of the Committee on the Catalogue of Grapes prepared for the guidance of judges at fairs, in presenting his report, said the list had been revised after spending a day over it. Copies of the report had been printed and were circulated. For catalogue of grapes see Appendix III.

EXPERIMENTS TO ASCERTAIN THE VALUE OF DILUTE SULPHURIC ACID FOR CHECKING THE SPROUTING OF POTATOES.

By Frank T. Shutt, M.A., Central Experimental Farm, Ottawa.

The quality of potatoes for culinary use is seriously affected in spring by "sprouting." Despite great care this often takes place, materially deteriorating the value for table use large quantities of potatoes annually.

Of late a statement has been widely circulated in the press of Canada, setting forth a so-called successful treatment for the prevention of this sprouting. This treatment consists in immersing the potatoes in a two per cent. (2 per cent.) solution of sulphuric acid (oil of vitrol), for some time, and then rinsing with cold water. This, it is claimed, will effectually prevent the eyes from sending forth shoots In order to ascertain the validity of this statement, a series of experiments was inaugurated in the spring of the present year with the following results.

Experiment 1.—February 25th 1892. Variety of potato, Early Ohio. The potatoes showed no signs of immediate sprouting, and were in good condition. They were immersed in a solution of sulphuric acid and of the recorded strength, in which they were allowed to remain 17 hours. The potatoes were then rinsed with cold water, spread out to dry and put in large wide-mouth glass bottles. Result: On standing, the potatoes become covered with pink spots or patches, which after a few days shrivelled. Decomposition soon set in at these places. After about two weeks a few of the eyes began to sprout. On cutting the potatoes, litmus paper showed that the acid had thoroughly permeated the tuber. The appearance of the potatoes was entirely destroyed for marketing purposes.

Variety, Chicago Market; treated as above throughout. Result: The potatoes were more shrivelled than the Early Ohio. Many of the eyes were deeply pitted and decomposed, yet one or two, apparently unaffected, sprouted after two weeks. Examination showed that the acid had completely permeated the tissue of the potatoes. The potatoes were not fit for use.

Experiment 2.—Variety, State of Maine. Immersed for four hours in the acid solution. Subsequent treatment was identical with that in former experiments. Result: Potatoes became slightly pitted with pink spots; sprouting greatly retarded, but beginning after nine days.

Experiment 3.—Variety, Beauty of Hebron. Immersed for two hours; subsequent treatment the same as before. Result: Potatoes showed a few pink spots upon drying, sprouting evidently retarded, but beginning after one week.

Experiment 4.—Variety, Empire State. Immersed for one hour, subsequent treatment the same as before. Result: Potatoes but very slightly affected by the acid; sprouted readily.

Experiment 5.—Variety, Thorburn. Immersed for twenty minutes; subsequent treatment the same as before. Result: Potatoes were not apparently affected by the acid, sprouted readily.

Summarizing these results we find that immersion for 17 hours did not kill all the eyes, though the potatoes as a whole were much affected by the acid, destroying them entirely for table use. Immersion for 4 hours injured the potatoes somewhat, but sprouting, though retarded, finally set in. Treatment for 2 hours but slightly affected the appearance of the potatoe but was valueless in preventing sprouting. Shorter periods of treatment did not injure the potatoes, but the acid was then not efficaceous in killing the eyes, sprouting took place after 20 minutes immersion as readily as in untreated tubers.

Conclusion.—Under the conditions stated above, there can be no doubt that two per cent. sulphuric acid is valueless in preventing the sprouting of potatoes. In these experiments no effort was made to preserve the treated potatoes from the light; future trials will be made in order to ascertain to what extent light is instrumental in promoting the sprouting of treated potatoes. It is also proposed to treat the potatoes in the autumn instead of in the spring, as it is possible that the eyes would then be more easily killed.

VOTE OF THANKS.

Mr. D. M. Lee, Secretary of the Brant County Association, reported the following resolution as having been passed by the local body :

That the members of this Association do hereby tender our hearty thanks to this Provincial Association now in session in our midst for accepting our invitation and holding their winter meeting in this city ; and further that we shall ever be thankful for the benefit we have received from the very able papers and the discussions that have followed the same.

FRUIT GROWERS' ASSOCIATION.

Mr. Lee said the local Association had entertained the Convention as best they could considering the unfavorable weather. He invited the Association to meet in Paris from which he came ; and extended an invitation personally to every delegate to call and see him when in Paris. Some of the members of the Provincial Association had contributed papers during the past year to the local Association, for which the latter were very thankful.

The President acknowledged the courtesy, and said the general expression from the delegates showed that in no place yet visited had there been a more hearty reception than in Brantford. The delegates had thoroughly enjoyed the intellectual and social entertainments provided for them. This meeting would be remembered for years to come Applause.)

Mr. Mitchell thought this an opportune moment to move that the thanks of the meeting be tendered to the people of Brantford and those who contributed to the pleasure of the delegates. Never since he had been a member of the Association had he seen such interest taken, or so many new faces, or met so many local members.

The motion was carried amid applause.

The Secretary : I notice Sheriff Watt present. We are thankful for the courtesy he has shown us.

Sheriff Watt said the County Council and the officials of the Court House were only too glad to welcome the Association. He regretted that owing to a misunderstanding yesterday the delegates were crowded in the County Council Chamber It was the oversight on the part of those who had the matter in charge and if it had been known in time it might have been remedied.

The Secretary called attention to a proposed change in the by-laws which appears in a report which was not formally adopted. He moved that these amendments be embodied in the report as approved of formerly.

Mr. Thos. Graham seconded the motion.

Mr. Beall : I am the only representative of affiliated societies that have a place on the Board, therefore I would like to move that No. 18 be changed so as to read "provided the first lot of names shall be ten in number, and after that as many as may be convenient." Also to change No. 19, from "fifty members" to "twenty-five members" for local societies.

Mr. Dawson, from the Brantford Society, seconded the amendment, which was put and carried.

GRAPE REPORT.

The President : Is the Convention ready to discuss the grape report ?

Mr. A. McD. Allan : Amendments could be made, but on the whole, I think the Committee have paid a great deal of attention to it, and they have looked upon it as a Provincial report, and I don't know that any single committee could do very much better, and perhaps no other Committee could do as well as the report now before us ; and I do not know but that, under the circumstances, the better plan would be to adopt the report as it is. I would so move.

Mr. J. D. Stewart seconded the motion, which was carried.

GRAPES RECOMMENDED.

Mr. G. W. Cline presented the report of this Committee, which was distributed in printed form.

After some discussion and some changes in the list to suit various localities,

Mr. Cline moved the adoption of the report as amended. He said: I consider the grapes best fitted to any one neighborhood are the few that are doing something; and the large list that can be grown don't amount to a row of beans. That is the list that I would put, and that is what I endeavored to get when I asked for those best adapted. I don't want to limit a man to twelve varieties, or to five varieties, because in some places you can grow a dozen, and in other places you can't grow more than four or five.

The Secretary: I would move that this report be referred back to the Committee to make any changes, before handing it to the Secretary, which they consider wise, in consultation with parties present.

The President: It ought to be carefully considered before we send it out; and the Secretary's motion is good.

Mr. Allan: I would rather see the list go into publication so that the members generally throughout the country would have the advantage of looking it over, and by another year we would be in a much better position than we are to-day to so classify the list that we would have a reliable one.

Prof. Craig moved that this be printed as a preliminary report of the Fruit Committee on grapes, and that it be subject to revision next year; that any special changes wished by any particular director of any district be made now, before the report goes in; and that the report be revised as a whole next year if necessary.

Mr. Race seconded this motion, which was carried.

(See Appendix III. for list.)

NEW FRUITS.

The President: Have the Committee on new fruits any report ready?

The Secretary: I don't think they have any report to make.

Mr. A. M. Allan: That is a matter that has fallen out of the Association entirely, and I consider it a great pity that it has. It is one of the best reports the Association can have. If we could get a competent committee to act as they do on the other side—all new fruits being sent to the chairman, who examines and gives a description of them—there is nothing this Association can do that will be of higher value to the people of the country generally. (Hear, hear.)

The President: Suppose the Secretary be that committee, and report through the *Horticulturist* in that respect?

The Secretary: I would prefer to have others to consult with.

Mr. Allan: That report ought to be read at the annual meeting of this Association every year, and it should cover everything that is being introduced in the way of new fruits. It is more and more necessary as we are getting new varieties of fruits continually brought into the country and forced upon growers.

Prof. Craig: I understand that I am on the new fruit committee, but I do not know what the duties are.

The Secretary: The committee already appointed, is to act through the coming year.

Mr. Allan: I think the committee—or at least the chairman—should be the same from year to year, so that the people will know to whom they shall send these fruits for examination, and they will look for that report from year to year.

The President: The following committee were duly appointed last year: Secretary, W. E. Wellington, and A. McD. Allan.

Mr. ALLAN: I know that, but it is expected by the rest of us that all these new fruits shall be sent in to the Secretary. Two years I was chairman of the new fruit committee, and there was no trouble at all in getting a report. Of course we had to work for it; and I was under the impression we looked to the chairman for everything; we who are in the ranks take no responsibility. Amongst other things we are supposed to look into all the new fruits placed upon the tables at exhibition time; but the chief duty is to report on the new fruits as being introduced into the country. It is a heavy piece of work, but most important.

Mr. CASTON: I think the Secretary has done pretty well in reporting on new fruits The reports in the *Horticulturist* from time to time are quite satisfactory.

OBITUARY.

Mr. A. M. SMITH reported as follows, and the report was adopted on motion by Mr. Smith, seconded by Prof. Craig.

RESOLUTION REGARDING THE LATE P. C. DEMPSEY.

Resolved: That this Association hereby expresses its deep sense of sorrow at the dispensation of Providence in the removal from our midst, by death, of the late P. C. Dempsey, of Albury, Prince Edward County. One who was an esteemed president of our Association and for many years an honored and efficient director. The Society ever recognizes the value of his sagacious counsel and his efforts in encouraging improvements in hybridizing and in importing new fruits adapted to the wants of the country; and, be it further resolved, that this Association does hereby express its sympathy with the bereaved members of his family, and request our secretary to forward them a copy of these resolutions.

AN INVITATION.

Mr. BRAND was asked to speak, and invited all the members to the Minnesota Fruit Growers' Convention at Minneapolis about the 10th January.

EXPERIMENTAL WORK.

Mr. A. M. SMITH wanted to get an expression of opinion from the Convention whether plans should be formulated and laid before the Minister of Agriculture during the coming season, with a view to getting legislation in regard to experimental farm work.

The SECRETARY: To simplify this matter I would move that the following committee be empowered to prepare some scheme for the carrying out of the experimental work in southern Ontario—or in our Province, I might say—and to advise with the Minister of Agriculture with regard to further procedure: A. M. Smith, M. Pettit, A. McD. Allan, and W. W. Hilborn.

Mr. ALLAN: I beg to be left off that committee, for certain reasons I do not think it necessary to explain now. I have had some conference with the Minister, and I know certain difficulties that will arise; so that I would rather not be on.

The SECRETARY: Then I would propose the three names that are left.

Motion put and carried.

The SECRETARY moved a hearty vote of thanks to the Brantford press for their full and interesting reports of the meetings.

Mr. CASTON seconded the motion which was carried.

The convention closed at 4.30.

APPENDIX I.

PAPERS CONTRIBUTED TO THE WINTER MEETING AT BRANTFORD BUT NOT READ.

FUNGI AFFECTING FRUITS.

By the Secretary.

How charming, to the inhabitant of the town, are the scenes of rural life; the rosy apples, the golden peaches and the various-hued grapes—how attractive! His visits to the country are usually made during the summer season, during the time when the orchards are either clothed in rich abundance of pink and white blossoms, or else are laden down with their luscious fruits. The harvest time to him appears a time of joy, a time of festivity, and he thinks that, if he could exchange his life in the town for one upon the farm, he would reach the height of bliss. It is a mistaken notion to suppose that the whole round upon the farm, and especially upon the fruit farm, is but one continued round of pleasurable occupation and at the end of the year a pot of gold.

How true in this case is the old proverb, "distance lends enchantment to the view."

So, old Horace, the Roman poet, puts it when he describes in his first Satire, the people who are always wishing they could exchange their lots with others, fancying that any other occupation is more pleasant than their own.

"Qui fit, Maecenas, ut nemo, quam sibi sortem
Seu ratio dederit seu fors objecerit, illa
Contentus vivat, laudet diversa sequentes?"

Our friends in the town know little of the hardships and discouragements which are the lot of the fruit grower, nor of the many long years spent in battling with difficulties before reaching his present prosperous condition; and it is to give the public some idea of the difficulties which are in our way as fruit growers that the writer has agreed to prepare this paper.

The recent problems facing horticulturists come naturally under two heads, first, Fungus Diseases, second, Insect Enemies; and in the brief time which you will be able to place at my disposal, I shall only have time to outline some of those which come under the first head. It is only recently that these two branches of science which refer to the very tiny subjects, such as can only be studied through the microscope, have been pursued far enough by scientists to make their investigations of real use to practical men, but now we are finding that the professor and the farmer are nearer friends than they were in days gone by. "Book larnin'" was for many years despised by the latter, but now the prejudices are wearing away, owing largely to the exertions of our professors who visit the Farmers' Institutes throughout the country. A neighbor used to tell me that he could not see any use in "eddication"; he never had any "larnin' hisself" and he said that he knew more than those who had. His favorite subject of conversation was astronomy, and he used to delight in meeting with us young students from the university and proving to us that all we learned at school concerning the rotundity of the earth and the distance away of the sun, moon and stars was erroneous and absurd.

Such men remind one of the redoubtable preacher spoken of by Dean Alford in his Queen's English, who used to hold forth at Cambridge, in a chapel on Green street. The Dean says his wont was to rail at the students of the university, trying to make out that it was a waste of time to study Greek and Latin. On one occasion, having wound himself up to the requisite pitch of fervor, he exclaimed in a voice of thunder, "Do ye think Powl knew Groek?"

One of the problems that was long unsolved among us fruit growers was the cause of the Plum-knot, but lately mycologists have given us an insight into its life history. For a long time it was thought to be caused by some insect, and even yet we meet with men who will not give up this theory. Insects are found in it, they say, and this they claim is positive proof that they are the cause. Careful investigation, however, shows that these insects are not the cause of it, but they simply make use of it as a favorable place for oviposition. We have had many foolish remedies proposed and as often tried by foolish fruit growers. No less an authority than an American Consul, residing in a Canadian town, recommended, as a sure cure for plum-knot, boring a hole in the trunk of the tree and filling it with flowers of sulphur. He said this would circulate through the sap of the tree and destroy the insect of the black-knot. Any one cognizant with chemistry or botany will see the foolishness of such a recommendation.

The Plum-knot is now known to be a well defined fungus, and is called by mycologists *Plowrightia Morbosa*. Little spores, corresponding with seeds, float along in the air and alight upon a suitable host, either in the form of a cherry or a plum tree. Soon the hated parasites send down their mycelial branches among the cells of the wood and derive means of nourishment. Soon they begin to throw up innumerable filaments, called conidia, on the ends of which are borne egg-shaped spores, as shown in the accompanying drawing, figure 1. These are summer spores which ripen and fall off and are carried by the wind long distances to propagate the disease.

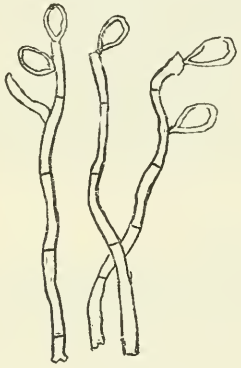


Fig. 1.—Conidiospores enlarged.

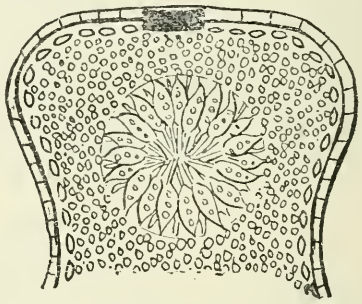


Fig. 2.—Cavity of Perithecium, with Ascospores. (May be seen in February with hand glass.)

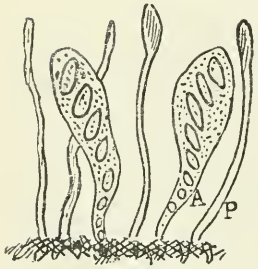


Fig. 3.—Asci, containing Ascospores.

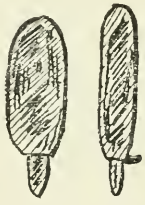


Fig. 4.—Ripe Ascospores.

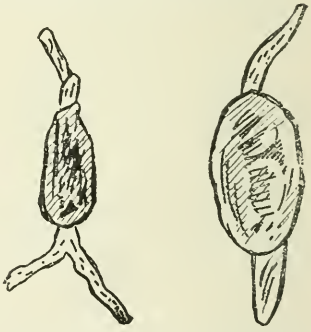


Fig. 5.—Ascospores germinating.

But it is not only in the summer time that the knot is active, but also in the winter. During the month of February winter spores are formed in the little sacs called asci (fig. 2). On cutting through a knot in the month of February, these little sacs are plainly discernible with a small hand-glass (fig. 3). Each contains about eight winter spores, known to mycologists as ascospores, which one by one are carried forth to some favorable host. For a long time the cause of the plum-knot was an unsolved problem, but, thanks to science, this problem has been solved, and we now know that cutting and burning the affected limbs will effectually stamp out the disease. We also know that a

paste made of kerosene and paint or turpentine is destructive to it. But, although we have information enabling us to overcome it in our own orchards, the problem still remains, how we can compel the lazy and indolent in town and country to destroy those plum and cherry trees in their gardens which are affected. The present law seems very inoperative. True, it provides for the appointment of an inspector in every municipality, but the council is not obliged to appoint such inspector except on a petition of at least fifty ratepayers, and this is too cumbersome a mode of proceedure. Further, the inspector is not required to act unless he receives written notice of the disease. All this is a mistake. He ought to be obliged to make a round of the orchards several times during the season, and have all affected trees destroyed without receiving notice from anybody.

Another problem in horticulture, which, as yet, is unsolved, is the cause of the YELLOWS in the peach. This mysterious disease originated in the peach orchards of some of the Middle States a good many years ago. It has gradually spread from state to state throughout the larger part of the Union, and across the borders into the peach orchards of our own country. Periodically its visitations seem to be more severe in character, destroying orchards by wholesale. Then, after peach growers have given up peach growing for some time, they find themselves able to begin again with some fair hopes of success. The Department of Vegetable Pathology of the United States has taken this matter up and spent an immense amount of money in investigating into this disease, and to this work have appointed Professor Erwin Smith, who has made elaborate reports of his work. But, although a large amount of money has been spent in this direction during the last three years, as yet no definite results have been obtained.

A year ago last summer I had a call from Professor Burrill, of Champaign, Ill., who was a delegate to the American Association for the Advancement of Science, then meeting in Toronto. He was looking up cases of yellows, which he said were not common in his own state. He is a man of most careful research, and his opinions are worthy of consideration. He believed that the disease was caused by bacteria, and, in this, most scientific men are in accord with him.

One thing we do know about the yellows, and that is that it is of an infectious character, in which respect it equals scarlet fever and small-pox. It may be carried from tree to tree, either by the bees in their searches for honey, or by instruments used in pruning the orchard.

We may hope, however, that ultimately the mystery will be solved, for the PEAR BLIGHT was, until lately, quite as mysterious. This latter has been the terror and despair of pear growers in all parts of the country. It would come in a single night upon the choicest trees in the garden and sometimes upon the whole orchard. You viewed them at night, the pride of the homestead, and on your next visit the foliage was blackened and sickly and the young fruit shrivelled and worthless. Some said it was caused by electricity, others by sunshine, others by insects, and so on, and just as numerous were the remedies proposed; as, for instance, digging in iron filings about the tree, slitting the bark, painting the bark, etc., all of which have been tried in vain.

But now it has been shown conclusively that this terrible disease is the result of a tiny bacterium, which lives in the sap and has the power of locomotion. It is called by botanists *Micrococcus Amylovorus*, and its size, when magnified 890 diameters, is only about half the size of a pin's head and very similar in shape. Prof. J. C. Arthur, who was at that time botanist of the Geneva Experiment Station, in his report for 1887, described this bacterium and stated that it was proved to be the real and only cause of the pear blight. He discovered the organism itself in blighting tissue, and inoculated healthy tissue of other trees with the germs from that which was diseased, and, as a result, the healthy trees were at once affected with the blight. Besides this, he found that the blight could not be communicated to healthy trees by the juices of the disease, after the germs were removed from them by filtration.

The same organism causes the twig-blight of the crab apple, the quince, and even, to some extent, ordinary cultivated varieties of the apple.

Prof. Burrill told me at the time of the visit referred to, that the bacterium of the pear blight ordinarily comes through the young and succulent wood of the trees and also through the stomata of the leaves and blossoms in the early part of the growing season. This explains why pear trees, which are stimulated to make a very rapid and succulent growth, are more subject to the blight. The little bacterium, according to Mr. Burrill, has a sort of corrosive nature which enables it to pass through the cellular tissue from cell to cell, thus working along through the wood, carrying destruction in its course.

Still the pear blight is only a half-solved problem. It yet remains to be shown how we may prevent its ravages and how to save the trees that are already affected. Spraying with the Bordeaux mixture early in summer has been recommended by the United States Department of Agriculture as being of great value in preventing leaf blight.

One of the greatest plagues of the fruit grower is the APPLE SCAB. This has been known to botanists on the continent of Europe for some fifty years, but, since the year 1869, its habits have been more carefully observed by mycologists, who have named it *Fusicladium dendriticum*. We gave some space to its description in the *Canadian Horticulturist*, volume x., page 103, and since that time have endeavored to keep apple growers posted concerning the progress of the evil and the success of the various remedies proposed for its destruction. At that time it had reached Australia; now we have reports of its presence even in New Zealand.

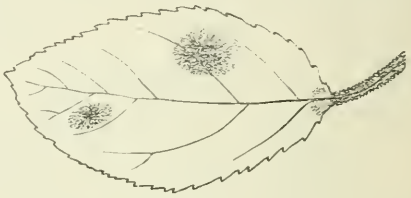


FIG. 6.

An important step in advance was made when it was shown that the fungus causing the leaf blight of apple, which resulted in its early dropping from the tree, was identical with that known as the scab on the fruit itself.

On the leaves the scab appears first as small olive-green spots, of a definite and rounded outline. (Fig. 6). These increase in size, and assume a velvety appearance, with a less regular border; sometimes two or more spots will coalesce, as it were, forming one large and irregular one. Sometimes even the petioles and the young twigs become affected, thus in every possible way the fungus tries to rob the tree of its vigor.

The most favorable conditions for its growth are the cool, moist weather of spring and fall, while its spread is retarded by the drouth and heat of midsummer. Owing to the dry warm weather prevailing in the early part of last summer, our apples were much freer from scab than usual.

The fungus appears to retain its vitality during the winter season, being known to spread even in barrels from apple to apple; and it remains in a living condition through the winter on the twigs of the apples, ready to begin its work of devastation in spring-

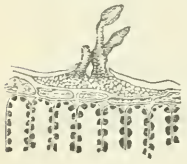


Fig. 7.

Fig 8.

Fig. 9.—Spores of fungus of Apple Scab, one germinating.

time. The loss caused to the country is alarming. The Secretary of the Illinois State Horticultural Society places the annual loss due to this parastic growth of $400,000, but this is very small compared with the annual loss to apple growers in Ontario.

Fig. 7 shows a section of one of the leaf spots, and fig. 8 a section of the skin of an apple with scab bursting up through the epidermis, or outer skin, both magnified 200 diameters. The mycelium, or plant body of the fungus, resembles a dense mass of tissue composed of dark brown walled cells. These do not penetrate the cuticle, or inner skin,

but grow between it and the epidermis, or outer skin, which they soon burst open, and send up brown threads on the ends of which are borne the spores for the propagation of the fungus.

These latter are so tiny, that it would require 3,200, side by side to reach an inch. They germinate in moisture at a temperature of 50 F., in about eight hours ; and the germ tubes have power to penetrate healthy skin and thus quickly spread the disease. Fig. 9 shows spores of fungus of Apple Scab ; one germinating.

Prof. Scribner, in his report of 1887, recommended spraying the trees in the early spring before the buds began to expand, with sulphate of iron, 4 lbs. to 4 gals. of water ; then, after fruit is set, with Bordeaux mixture. More recently, Prof Taft and Prof. Trelease have highly commended the use of ammoniacal copper carbonate.

This spring, in the last report of the Ohio Experimental station, we observe that Prof. Green asserts that the most satisfactory of the copper compounds for destroying apple scab, with regard to cost, convenience and effectiveness, is the dilute Bordeaux mixture. The method of preparing it is as follows : Dissolve four pounds of copper sulphate in two gallons of hot water ; add sufficient water to cool it. Slake four pounds of quick lime add water to make a milk of lime. Pour into copper sulphate through sieve to dissolve the lime better. Dilute to fifty gallons.

One advantage of this mixture is that Paris green may be used with it and no injury to the foliage results. The effect should be bright, clean, healthy foliage and fruit, as well as comparative freedom from curculio and codling moth.

In the Journal of Mycology, Vol. VII, No. 1, Prof. Goff, of Madison, Wisconsin, reports his experiments in 1891, in treating apple scab. He used, chiefly, copper carbonate (1) in suspension, using one ounce to twelve gallons of water, and (2) dissolved in ammonia, one ounce to twenty five gallons of water. In the latter case the ounce of salt was first dissolved im a quart of ammonia.

He found that the copper carbonate applied in suspension, just as we use Paris green, was nearly as effective as when half the amount was used diluted in ammonia, and it had the advantage that Paris green for codling-moth could be safely added. Treating the trees before the opening of the flowers was of great value ; indeed, in one instance, where the Canada Peach apple was sprayed with copper carbonate, it was found that one application previous to the opening of the bloom was more effective than four after. On trees badly infested, the scab reduces the size of the apples so much as to lessen the crop at least twenty per cent., besides rendering a large part of it worthless.

The result of the use of diluted Bordeaux mixture was, by Professor Green, a saving of three quarters, at least, of fruit which would otherwise have been ruined, besides increasing the size of the fruit itself, and giving it greater beauty for market purposes. In addition to this there resulted a brighter and healthier foliage upon the tree itself, which means a great deal for the vigor of the orchard. The excellent effect of spraying with this mixture is shown in the results of Professor Green's experiment at the Ohio Experiment Station with the Newton Pippin, a variety perhaps more subject to scab than any other. Of the 100 apples from the sprayed trees, 15 were first class, 74 second and 11 third, while of the same number of apples from unsprayed trees there was no first-class samples only 40 second, and there were 60 third class. Thus, it appears that, while spraying does not wholly prevent the scab, it pays well for the outlay required of time and money.

There are other ways in which the results are benefical besides those mentioned. The leaves of our trees, when affected by the scab, fall prematurely, carrying with them much potash and phosphoric acid, a direct loss to the strength of the tree. Now, if the leaves can be made, by spraying, to hold fast until the proper season for maturity of growth, these fertilizing constitutents will be withdrawn from the leaves into the body of the tree, and there be stored up for the following year. This spraying is useful also in blight and some think in plum knot.

Tomato Rot.—This is a fungus for which no remedy has been certainly found. It is very wide-spread in Ontario, and does great injury to the business of truck gardeners. Some varieties, as Acme and Mikado, seems very subject to it, while Perfection, Paragon and Trophy are less so. The appearance of the affected fruit is shown in fig. 10.

Fig. 10.—Tomato Rot.

By scientists it is called *Macrosporium Solani*. The fungus consists of a dark colored mycelium or vegetative system, the growing tubes of which can be readily traced to the cells of the sound tissue of the tomato, (see fig. 11*a*), and of spores, which are borne on the end of branches, called hyphæ, represented in fig. 11, *b* and *c*. These are at first dark brown, but at length turn olive-black. When these spores come in contact with green or ripe fruit they germinate rapidly under favorable circumstances, such as heat and moisture, and send out slender tubes, shown at fig. *d*. These spores survive the winter in the shrivelled fruit, and in old leaves and stems. The remedy proposed by the United States Department of Agriculture is: One half ounce sulphuret of potassium, dissolved in a gallon of water, and sprayed upon the vines, so as to thoroughly wet all the fruit.

The Powdery Mildew of the Grape (*Uncinula Spiralis*) is quite common in the Niagara district, and in some varieties very injurious. It appears first early in June, in the form of dull greyish white patches on the leaves and fruit. Under the microscope these patches are seen to be the mycelial growth of the mildew which spreads over the

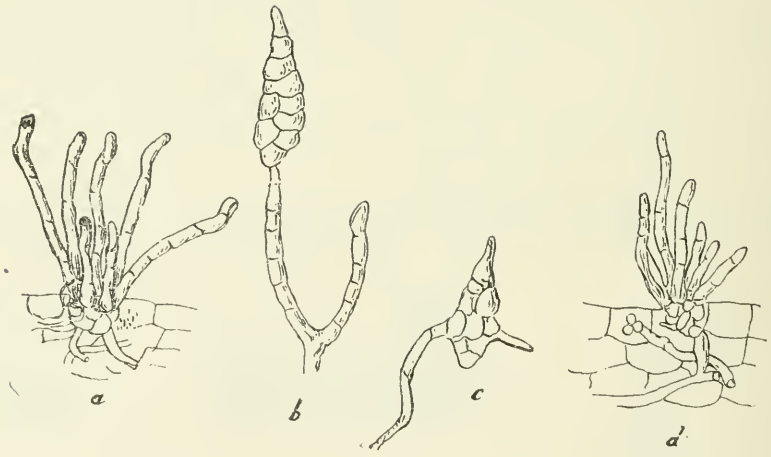


Fig. 11.

surface of the host plant, and does not penetrate its tissue except that it sends down among the cells occasional suckers (see fig. 12, *b. b.*,) by which it draws nourishment. That threads of the mycelium are not easily distinguished is evident when we note Prof. Scribner's statement that they are each only one six-thousandth part of an inch in diameter. In June or July short upright branches appear, which are jointed, as shown in Fig. 12. One by one these terminal cells drop off. They are really summer spores for the propagation of the mildew, and are known as condia. Two of these are shown in Fig.

12, *a. a.*, which according to Prof. Scribner, are only one-thousandth part of an inch in length at their largest diameter. These float about in the air, and alighting on a proper host soon germinate under the favoring conditions of summer heat and moisture.

Fig. 13 shows a very small portion of epidermis of a grape berry, upon which the mycelium of Uncinula has grown, highly magnified.

Later on in the season, during the months of September and October, spores quite different in character are formed. The case in which they grow is apparent to the naked eye, and is known as the perithecium, or "fruit" of the mildew. Each of these is full of asci, three of which are shown emerging from the perithecium in fig. 14. Inside these,

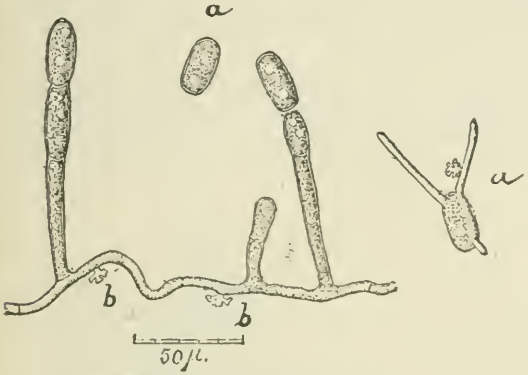


Fig 12.—Mycelium of Uncinula Spiralis, from a grape leaf.

Fig. 13.

in turn, are the ascospores, or winter spores. These are safely protected during the winter season by the hard compact walls of the perithecium, which in spring crack open and allow the asci to escape, and bring about a new infection of the vines. While this mildew is not nearly so destructive as that variety called the Downy mildew, still it is capable of wholly ruining the crop of certain varieties which are subject to it, as for instance, the Salem.

The usual remedy found to be quite effectual in most cases in the Niagara district is dusting flowers of sulphur on the vines, or, in hot weather, underneath them; but a more certain and effectual method is spraying the vines with the Bordeaux mixture, or the carbonate of copper early in the season.

The Powdery Mildew of the Gooseberry (*Sphærotheca mors uvæ*).—Like the powdery mildew of the grape, this is a parasitic fungus, filamentous or thread-like in growth, and only attacks the surface of the host, giving it a powdery appearance. Gooseberries affected, as everyone knows, are rendered both unsightly and undesirable for food, and it is owing chiefly to the prevalence of this mildew in Ontario that so few of the superb English varieties are found in our gardens.

It first appears on the young half grown leaves and young wood, and later upon the young berries. Prof. Scribner, in his report on Vegetable Pathology for the year 1887, gives full illustrations and description of this fungus, and to it we refer any one who wishes to carefully examine its growth. Suffice to say here, that its summer spores are formed similarly to those of the powdery mildew of the grape, the upper segments of the conidia dropping off, and being carried about easily by the wind to scatter the evil; and that its winter spores are also formed within perithecia in a similar manner to those of the grape. When these perithecia ripen they become a chestnut color, hence the gooseberry mildew in its last stage loses its white appearance and becomes a dirty brown; and in this way the condition of the mildew may be determined.

Any remedy to be successful must be early applied. Early and frequent applications of flowers of sulphur are useful, but not so effective as in the case of the grape vine mildew. Experiments at the Geneva Experiment Station, conducted last summer, have resulted in

the discovery that the most successful treatment of gooseberry mildew is with sulphuret of potasssium. The bushes were sprayed at an early date with a solution of one half ounce of this substance dissolved in a gallon of hot water. It is therefore recommended as the best known remedy for this evil.

Cherry Rot (*Oidium fructigenum*) is the most serious obstacle in the way of the successful cultivation of this valuable fruit. The Heart and Bigarreau varieties, and especially the latter, are particularly subject to this fungus. The Napoleon Bigarreau, for instance, is frequently very heavily laden with fruit, but a protracted season of wet weather so encourages the development of this fungus that the rot, beginning in small spots, soon spreads from cherry to cherry, until, before picking time, the whole crop is entirely unfit for shipping. Could we succeed in overcoming this evil, we are of the opinion that the cultivation of the many very excellent varieties of cherries would be more remunerative to the grower than strawberries.

The fungus itself consists of much branched threads, or mycelia, which permeate the tissue of the fruit causing it to turn brown and decay. When the air is moist these throw up tufts of dirty white dusty fruit stalks. These divide into minute sections, which, when ripe, separate and fall off from the top, one by one, in the form of spores. These spores

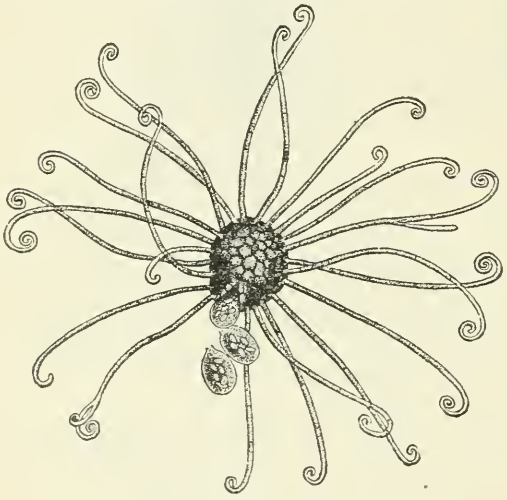


Fig. 14.—Perithecium of Uncinula Spiralis, with hooked arms, which give rise to the name *uncinula*.

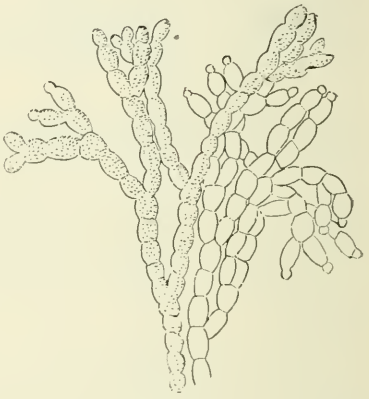


Fig. 15.
Fungus of Cherry Rot.

are so light as to be readily carried about in the air from tree to tree, and thus the evil is rapidly spread about through the orchard. Fig. 15 is a representation of two fruiting threads of this fungus before the spores have begun to fall away, magnified 250 diameters. The engraving is reproduced from a late report of the Geneva Experiment Station.

Since the spores can only develop in a moist atmosphere, it is quite evident that, if we could keep our cherries perfectly dry, there would be no rot. But, as this is impossible, we must endeavour to find some other means of preventing the evil. The spores have great vitality and preserve their generative powers from one season to another. The old ripe cherries which dry up and hang upon the trees during the winter, as well as the fallen cherries beneath the trees, are the means of carrying the fungus through to the following season. Any mode by which these could be destroyed would be helpful, whether by burning or by allowing the pigs to run in the orchard, so as to eat up all that drop. Probably the most reliable method of combatting the evil will be found in the universal remedy of spraying the trees with the Bordeaux mixture as soon as possible after the blossoms have fallen.

Plum Leaf or Shot Hole Fungus (*Septoria Cerasina*).—The leaves of cherry and plum trees are often affected by this fungus, the appearance of which is well represented in Fig. 16.

The holes are frequently so round and even that they awaken considerable curiosity on the part of the observer as to their cause, but lately the mystery has been explained by Prof. Scribner, who says that they are caused by a fungus which is very widely distributed throughout the States east of the Mississippi. Though not a very serious pest, it often inflicts considerable injury both upon the cherry and the plum trees, by interfering with the proper function of the leaves, causing them to drop prematurely, sometimes as early as the first of August. The leaves attacked show at first, scattered here and there over the surface, dark purple spots, visible on both sides, varying from one twenty-fourth to one eighth of an inch in diameter. After a brief period, the tissues covered by these spots becomes dead and brownish in color. On examining one of these brown spots under the microscope there will be detected from one to several minute black points. These are the fruits of the fungus, like little capsules, in which the spores of the fungus are produced in great abundance. These are very slender and many times longer than broad, and quite

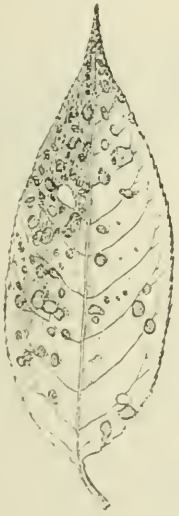


Fig. 16.

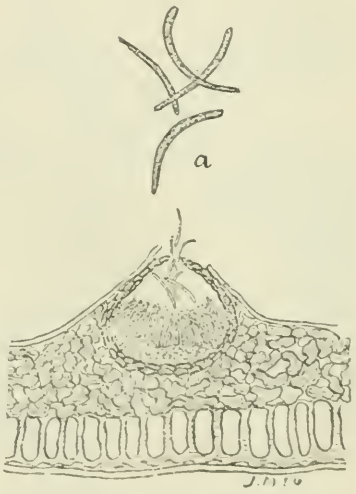


Fig. 17.—Section of diseased plum leaf: *a* spores.

transparent. They are usually divided by one or more cross walls into two or more cells, and each cell in every spore is capable of producing a new growth of this parasitic plant.

Fig. 17 represents a highly magnified section through the leaf, including one of the four capsules, and at *a*, above, are shown some of the spores, still more highly magnified. The parasite buries itself within the leaf tissue and, therefore, any treatment, to be successful, must be preventive. Spraying the trees with the copper carbonate compounds, or with the Bordeaux mixture, for preventing the plum or cherry rot will result, in all probability, in preventing the growth of this fungus.

Strawberry Leaf Blight (*Sphærella Fragariæ*) —This is another of the well known difficulties which meet the grower of small fruits in Ontario. It is commonly spoken of as the "strawberry rust," "sun scald," or "spot disease," although, according to Prof. Dudley, the term "leaf blight" would be more applicable as a common name.

This blight first appears on the new leaves about the time of the setting fruit, and if the weather of the succeeding months is dry and hot, there will result serious injury to the vitality of the plants. Any one will readily recognize the common appearance of this fungus from Fig. 18. The spot is at first brownish or red purple, but when fully matured it has a circular centre dead white, from one-eighth to one-quarter of an inch in diameter.

The red-purple color is the result of a growth of filaments of the vegetative portion, or mycelium, (fig. 19*a*) of this fungus, pushing their way through between the cells of the interior of leaves, disorganizing their contents and absorbing their fluids. Air spaces are then formed in the centre of the spot, giving rise to the dead white appearance which results. In fig. 19 there is seen the transection of a strawberry leaf, of which the portion on the left is healthy and of the usual thickness, while that at the right shows a margin of the "spot," and this portion of the leaf is shrivelled to one-fifth its usual thickness. At *b* is seen the reproductive portion of the fungus known as conidia. The conidia spores are oblong and very minute, and when they fall on the fresh leaf surface, where there is a moisture, soon germinate, bore their way to the epidermis *c*, and give rise to fresh spots.

In addition to this mode of propagation by conidia, which are summer spores, and short-lived, there are also winter spores grown in sacs called asci. Each ascus, or sac, contains eight ascospores, and these preserve their vitality in the dead leaves through the

Fig. 18.

winter, and mature in the early spring. From this explanation it is evident that considerable benefit might be derived by strawberry growers through the plan adopted by some, of burning over the plantation in the early spring, for, in this way the fungus, to a large extent, may be destroyed.

The fungicide recommended by Professor Scribner for spraying the strawberry bed, is three ounces of carbonate of copper dissolved in one quart of water, and then diluted with twenty gallons of water. This should be sprayed on the plantation after the crop has been gathered, and repeated once or twice before the first of September. No doubt the Bordeaux mixture would be equally effective.

Some of the varieties, as the Manchester and the Wilson, are especially liable to this disease, while other varieties, such as Sharpless, are little troubled with it.

The Raspberry Anthracnose (*Glœosporium venetum*).—This fungus is one which has thus far not prevailed to any great extent in Ontario. But from a late report of the Cornell Experiment Station, we note that it was observed in New York State last season, both on the raspberry and blackberry canes. This may yet become a serious injury to us

in Ontario. An instance is given by Prof. Burrill, of a blackberry plantation in Missouri that yielded a profit of $400 one year, which was so reduced by the disease that it scarcely paid expenses the year following The apparent injury to blackcaps in Missouri in the year 1887 from this fungus was estimated at from ten to twelve per cent. of the entire crop.

It first appears in the form of small purple spots scattered around the lower parts of the canes. These soon rapidly increase in size and spread from the lower portion of the canes upward, giving them a scabby, pithy appearance, as shown in fig. 20. The damage done by these blotches rarely extend to the pith, but the greatest injury is done to the cambium layer, or the portion through which the sap is conveyed in the process of growth, resulting very much the same as if the canes had been girdled. As a result, the leaves do not attain more than half the normal size, and the fruit, if developed at all, does not

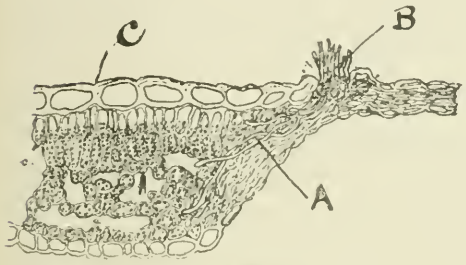


Fig. 19.—Section of diseased strawberry leaf.

Fig. 20.—Raspberry Anthracnose.

reach its full development, but ripens prematurely, or simply dries up and is worthless. If the canes are not killed the first year, the continued action of the fungus on the leaves and branches prevents the formation of fruit the succeeding year. After the fungus has appeared upon the canes, the petioles of the leaves are attacked in the form of purplish spots near their base. Gradually the disease spreads throughout the whole framework of the leaves, showing white blister-like spots.

We omit any description of the botanical character of this fungus, but simply remark that in overcoming it a vigorous condition of the plant is important, and any old plantations which are diseased would be better cleared out and burned. One experiment station recommends spraying early in the spring, before the growth has begun, with sulphate of iron, a pound to a gallon of water, and after the leaves appear, with the Bordeaux mixture.

For many of the illustrations used with this paper, and for much information, I am indebted to the excellent publications of the Department of Agriculture, Section of Mycology, of the United States. In this important field of study a great advance has been made during the last few years, and the results are proving to be of immense value to fruit growers and gardeners. Many of the worst problems facing the horticulturist have been satisfactorily solved, and many others will be cleared up during the coming year. The importance of a widespread dissemination of the work of these experimenters, in its relation to the prosperity of our province, can scarcely be over estimated.

ADDRESS OF DR. W. J. BEAL AT THE LAYING OF THE CORNER-STONE OF THE NEW BOTANICAL LABORATORY OF THE MICHIGAN AGRICULTURAL COLLEGE.

In view of the resolution passed by our Association at its winter meeting in the City of Hamilton, in December, 1891, looking toward the establishment of a Provincial Botanic Garden in the City of Toronto, or at some other convenient point, this address of Dr. Beal's contributed to us by him, seems quite opportune.

The Equipment of a Botanical Department at an Agricultural College.

In March, 1890, the old Botanical Laboratory of the Michigan Agricultural College, after serving as a busy hive for ten years, suddenly turned to smoke and ashes. Since that time we have been dependent on the kind hospitality of the Agricultural Department for rooms in which to meet our classes and perform other duties incident to a department of botany. Not without some opposition, doubtless on account of a lack of knowledge as to what modern botany can do for agriculture, the members of the last legislature made a fairly adequate appropriation for a new building, which will be a great improvement over the one destroyed.

Planted on yonder knoll by the wisdom of the State Board of Agriculture, between the laboratories of agriculture and horticulture, this second and better botanical laboratory is to stand. It was doubtless so located with the notion that botany is the right hand support of the one and the left hand support of the other; or perhaps with a notion that botany is of a greater importance, and that agriculture and horticulture are her foremost allies.

So far as I know, this simple ceremony is the only one that was ever held at the laying of the corner-stone of any building at this college—and this block is not a corner-stone, nor the key-stone of an arch, but a "broadrider" placed near the left of the main entrance, marked "Botany," to let those who enter see what they are coming to.

In 1859, a third of a century ago, when I took my first degree at the University of Michigan, there was but one institution of learning in the United States that employed and paid a man for devoting all of his time to the science of botany. The person referred to was the late Dr. Asa Gray, who was for many years the professor of botany at Harvard University. At that time only eight weeks of daily work were required of undergraduate students, and they had the opportunity of electing about three weeks more. A very few resident graduates—one to three at a time—pursued the science further.

In a limited number of other universities and colleges, botany found a small niche in the course of study, one man usually teaching all the botany, zoology, geology that were taught, and often also taught all the chemistry, and had plenty of time to spare for classes in mathematics and possibly in rhetoric or some other subject. The short course in botany at that time consisted almost entirely of some lessons in the gross anatomy and morphology of flowering plants and ferns and their allies. A very little attention was given to the geographical distribution of plants.

I need not tell you, Mr. President, that in those times most scholars considered botany of little importance, either for the facts acquired or the discipline and culture that it could give. Little was expected and little was given.

For the rapid and wide-spread interest and attention which botany has attracted in this country within the past fifteen or twenty years, nothing in my opinion has done so much as the work performed in our colleges of agriculture, and in the United States Department of Agriculture. I have carefully watched these influences in the numerous national, state and local gatherings of scientific men. The large number and the nature of themes discussed; the practical mode of treatment and the rapid increase of wide-awake and able men and women who bow at Flora's shrine, has been most remarkable, and this movement has but fairly got under way.

I will not attempt at this time to enumerate what botanists are doing, but refer you to numerous journals and transactions of learned societies, to recent books and bulletins, to courses of study in every college which has the least spark of modern thought in it.

In these days a well equipped agricultural college cannot get along, so far as botany is concerned, by employing a man to teach botany who shall also be required to teach other subjects.

Under good management a botanical department will advance just in proportion to the means at its disposal.

This may be a suitable time for a little indulgence in considering an ideal plan for a botanical department of a college with as good an endowment and as great pretentions as this one. To attract students and give them good opportunities, the department should be many sided and symmetrical. One or more of the teachers should be enthusiastic in field work—a good collector and well skilled in preparing plants for the herbarium. Very much yet remains to be done in systematic botany, as studied by those of the "old school," with all the aids that have come from histology and physiology and embryology. The latter are indispensible in any course of botany.

In an agricultural college, special attention should be given to the study of grasses and other forage plants, to trees, shrubs and weeds.

Another broad and fertile field is the study of variation and description of our cultivated plants, subjects which have been receiving little attention from naturalists.

There are many sections of cryptogamic botany of great interest and importance; among the most important of which in an agricultural course are the study of parasitic fungi and bacteria. For several years, about these days we are adding annually 5,000 or more plants to our herbarium, including plants of many of the lower families. This growth ought to continue for a long time yet. This should include specimens of cultivated plants, such as grown in the vegetable gardens, orchards, and those which are grown for flowers or foliage. Such a college must have a good supply of compound microscopes, so that only one person shall have access to the same instrument during any term. New and improved instruments are all the time appearing, and we must have them or suffer the consequences of falling behind the times. Microtomes, a host of re-agents, apparatus for experiments in plant physiology, maps, charts, purchased or made to order, must be all the time accumulating, even though the garret becomes replete with old rubbish. Lantern views and means to use, and conveniences for photographing objects large or microscopic are indispensable in 1892

For years I have been experimenting and watching the effects of numerous lectures given to students on botanical subjects. I have kept reducing the lectures, and instead have given the students references to first-class books in which they could, in connection with original work, read and take notes to better advantage than when following a lecture. Our botanical books are far better and more numerous than they used to be.

As nearly all of you know for some time past we have kept on the shelves or on the tables of the botanical class rooms from five to ten or more copies of such books as:

Saab's Text Book and Lectures on Physiology; De Bary's Comparative Anatomy of Phanerogams and Ferns, his Morphology and Biology of the Fungi, Mycetozoa and Bacteria; Goebel's Outlines of Classification and Special Morphology of Plants; Strasburger's Handbook of Practical Botany; Bessey's Botany for High Schools and Colleges; Plowright's Monograph of the British Uredineæ and Ustilagineæ; Burill's Uredineæ, Erysipheæ and Bacteria; Bower's Course of Practical Instruction in Botany; Campbell's Elements of Structural and Systematic Botany; Cryptogamic Botany, by Le[illegible]et and Murray; numerous bulletins of the United States Department of Agriculture, especially those of the section of Vegetable Philosophy; Goodall's Physiological Botany; Gray's Text Book; Plant Dissection by Arthur, Barnes and Coulter. These and a smaller number of other good works are on the tables, and we use many others The plan of freely using these books as needed in place of numerous lectures works admirably. A good library is one of the requisites of our ideal Botanical Department

Our thrifty botanical club of thirty members, meeting voluntarily three or four times a month, demands some hints and some time at the hands of the teachers in this department. In like manner, for many years past, the students in botany at this college have helped maintain a thriving natural history society.

Please keep in mind that I am naming the necessary equipment for the botanical department of a good agricultural college. Some of the force, at least, should be skilled in the use of the pencil and crayon.

The department will be defective if it abandon a botanical museum, such as was fairly begun and set up in the old laboratory.

Green-houses in variety we have already. Some day we should have one for use in summer in which to grow plants of cold regions. In these houses to serve botany best should be placed a greater variety of plants to illustrate certain points of culture, or plants of economic importance.

We have a botanical garden, recently much enlarged, but still with room enough for far greater extension. In such a garden there are, or will be sunny slopes and shady banks, ponds and bogs, an aboretum for specimen trees and shrubs.

We once agitated the scheme of purchasing twenty to forty acres, two miles from here, because it contained many nice swamp and bog plants. I now think it would be better to move the nicest portion of such a swamp to our own college grounds, and with a little support we can do it and have a gem right at our own door.

Here we have perhaps 200 acres which contain our buildings, the orchards, gardens, lawns, groves and play grounds, saying nothing about experiment plats and the fields to the south of us. Let us imagine the valley along our lazy brook filled to the top of its banks on either side with hardy herbs and shrubs, with extensions in suitable places along the flats of the Red Cedar and on the north bank of this quiet stream from the boiler-house to the west entrance at the foot of the hill, a distance of three-quarters of a mile. The plants in question should be to a great extent grouped by families and genera, each plant occupying a much larger space than is customary in any botanical garden which I have ever seen or read about. For example, a patch of viola pedata should be well grown and not less than three feet in diameter; of helianthus orgylis, six to ten feet; peltandria undulata, eight feet or more. So of sedges and grasses, which have not been introduced for use in masses as they might well be. In numerous cases, whether we wish it or not, it is better to grow plants much alike each other a little way apart with something else between them, especially where they are inclined to mix by seeds or root-stalks.

Again, I have learned by experience, that in very many cases it is easier to shift plants to other places every few years than to take up and change the soil and reset in the same spots. A rotation of crops is a good practice for a botanical garden as well as for fields of grass and grain for the farm, or berries and vegetables for the garden. This occasional shifting of plants may seem to some too unstable for a well-planned botanical garden. On the campus in connection with our large groves and groups of trees and shrubs could be planted one or more good specimes to represent many families or genera of hardy, woody plants.

The scattering of duplicate trees, shrubs or herbs is unnecessary and tends to confusion in a botanical garden, but it may often be just the thing to produce the best effect for ornamenting a campus, a park, or a cemetery. For such a garden we should need a map, lists of plants in alphabetical order, and everything well labelled.

With a course of instruction like ours extending through the summer months, a botanical garden is of much greater value, if possible, than it can be to a college which takes a long summer vacation. Such a garden, with all the accompaniments to which I have referred, could not fail to make itself felt in advancing agriculture and horticulture, as well as botany. This campus would more than ever interest visitors from all parts of the State, but would be of great value to the neighboring city and serve the place of one of its parks. In more than one of my former reports I have dealt at length on the relations of botany to agriculture, and attempted to show the great value of botany as a study to cultivate the observation and strengthen the reasoning powers.

The number of botanical gardens in the United States is usually given as one each at Harvard, Washington, St. Louis and Michigan Agricultural College, and none of these are yet what they should be or what they are certain to become. I have seen all of these and am encouraged to believe that with continued and increased support, right here at this college there will be in a very short time a botanic garden which in many respects will surpass any to be found in the country. For many reasons this is an admirable location for a first-class botanic garden.

We have already made a good beginning towards such a garden in the broadest sense. Including species and varieties in the experiment station, we now have not far from 5,000. To maintain an establishment in a creditable manner money is needed. I will not say how much, but considerable ; the more the better. The more I think of it the more the subject grows upon me.

This college is supported mainly by the United States Government, and to a considerable extent also by the State. Perhaps this condition of things may tend to prevent endowments by wealthy persons.

Mr. President, as you know we have been looking over the list of Michigan's enterprising wealthy citizens with a view to finding one or more whom we could interest in botanical work. The endowment of a botanical garden is comparatively a new way of spending a fortune in this country, and perhaps in any other country. The only instance that has come to my knowledge of a person liberally endowing a botanic garden is that of the late Hon. Henry Shaw, of St. Louis, Mo. This exceptionally bright example was of so much interest to botanists that three of us, Hon. C. W. Garfield, Prof. L. R. Taft and your humble servant were recently authorized by our wide awake State Board of Agriculture to make a pilgrimage to the Shaw gardens. In St. Louis a good deal has already been done in several directions, and after a little time we may anticipate great things in a botanical way. Only a small portion of this great endowment is yet available, as so much of it consists in unimproved real estate.

One point I had especially in mind during our recent visit was to glean all the facts possible as to the nature and disposition of Mr. Shaw, that this might aid us in finding his duplicate in our own state. What were his surroundings? Who were his most intimate associates in early life? What were the influences after his early retirement from a prosperous business that tended to induce him to lay a large fortune at the disposal of the neatest science known? Who were Mr. Shaw's advisers? We learned that he was a bachelor. The trees, shrubs and other plants he learned to like in place of a loving wife and children. For many years he was accustomed to consult the late Dr. Gray, who doubtless may have done much to shape the destinies of the Shaw gardens.

We learned that in his last visit to Europe Mr. Shaw was much impressed while walking through the grounds at Chatsworth, the most magnificent private residence in Europe, and then and there resolved to have a garden of the same sort in a smaller way.

In this country men of wealth and ambition seek office and promotion in many directions and often make for themselves good records. In a very large majority of cases, however, the fame is emphemeral.

As it seems to me, Mr. Shaw in endowing the garden of St. Louis has placed his name where it will be long and most favorably known, not only to those living in the immediate vicinity of his former home, but to those living in remote countries. I can scarcely conceive of a pleasanter way of remembrance than to have a name long associated with a garden of native trees, shrubs, flowers and foliage plants.

In the meantime, while all are looking and waiting and hoping to find the man to endow a garden with money, we shall keep making additions and improvements as best we can.

The chief use of a botanical department here is to give instruction to students, especially the sort of botany of greatest value to the farmer.

Another object should not be lost sight of, viz, original research. If the teacher's time and that of his assistant's is fully occupied with routine work, nothing can be done by way of investigation. A college will fail in a very important part of its work, if no provision is made for research by its teachers. This gives them a chance to grow, inspires them with enthusiasm and is a great help to the students, and to the world at large.

On this subject Dr Farlow, one of Harvard's brightest men, says: "What does investigation mean? It does not mean anything which is of necessity capable of partial application at first sight. The investigator is a dull, plodding mortal, working away year by year. But at last he discovers something which is of benefit to all mankind. You should not hurry the investigator; we must have a report in six months; we must have a report in a year. Tell us about this thing, about that thing or about the other thing. An investigator is one who knows what he is about and he knows a great deal

better than you do. He is one who has been trained, who has studied deeply, who is thoroughly in earnest."

Dr. Trelease, the director of the Shaw gardens, says: "No one who has not himself done original work can appreciate the slowness with which results are are obtained." I have often heard similar remarks from Dr. Gray, one of the most industrious and successful of investigators of the present century.

The new laboratory is to be a well lighted, substantial building, so constructed that vermin cannot effect a lodging. It is 45x55 feet, practically four stories high. The rooms for museum are expected in a few years.

To summarize: I note a rapid progress which botany has made in this country, attributing the increased number of workers largely to the agricultural colleges and the United States Department of Agriculture.

At present botany is recognized in all of our best colleges as an important part of instruction for the knowledge, culture and discipline it affords. In these institutions investigations in great variety are carried on in all families of plants, from the highest to the lowest.

For the best results a botanical department must be many sided—with teachers who are experts in numerous directions.

We must have a well kept and continually growing herbarium.

Such a department should have as many compound microscopes as there are students using them in any term, and much other apparatus for experiments and photography.

Duplicate volumes of books are needed all the time in the class-room, besides a generous library.

A botanical club or society, which shall meet as does the one here, every week.

The department will not be complete without a museum of plant products.

There must be numerous green-houses, varying in temperature and light and moisture.

Also a botanic garden and arboretum.

Original research must not be neglected nor crowded out, nor should the study of varieties of cultivated plants.

A liberal and uniformly increasing and permanent endowment is indispensable.

In addition to what the nation and the state are likely to afford for the purpose, we seek a cultured gentleman or lady of wealth, who shall interest himself in a most substantial manner. In aiding such work follows a guarantee that the name of such person shall be kept green, bear frequent blossoms and a liberal harvest of fine fruit for centuries to come.

In his garden, foliage and flowers, in pond, bog, arid slope and shady ravine, in soil wet or moist, fertile or sterile, in the open air or in the conservatory, each plant in the most favorable surroundings and well kept, shall pronounce a succession of benedictions on the name of the liberal benefactor.

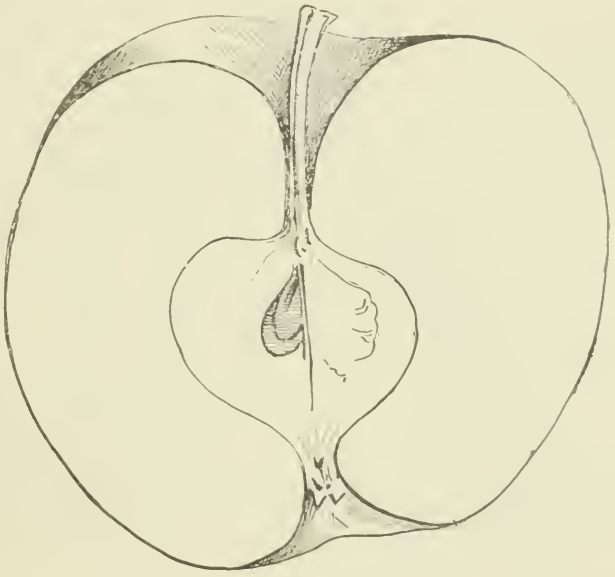
RUSSIAN FRUITS.

Considering the large variety of apples and pears which are being introduced into Canada from Russia by the Ontario Fruit Growers' Association—many of which are being distributed to those of our members who ask for them, it will be of great importance to preserve in a compact form, the letters describing them, sent us by Mr. Jaroslav Niemetz, of Real College, Winnitza, Podolia, Russia who has been instrumental in procuring the varieties for us, and who has so interested himself in our work as to become a member of our Association. The originals of these letters were written some in French, some in German and some in English. (The Secretary.)

1. Stone Antonovka.

One of the finest of Russian apples, the white (ordinary) Antonovka is well known in America, although it has there unfortunately lost its Russian name, and is cultivated there under other names. "Queen of the Steppes" is the name which has been given it by the celebrated Prof. Budd. In the provinces of southern Russia, where it keeps until October, it is not counted among the winter apples, and is replaced by an apple which they call here "Lipovoe" (Linden apple.) The finest qualities of the Antonovka are developed only in northern Russia, and there is no reason to doubt that in America it

will succeed best in the North. That apple has several varieties in Russia, of which the best is without doubt the "Antonovka longovia" (meadow) or "Ramenaia" (Ramen signifies stone,) which is a veritable winter apple, not only in the South but also in the North. Having only some very insignificant distinguishing points, it is very difficult to identify the "Stone-Antonovka," and it is necessary to have long practise to be able to recognize the two trees, but the former grows more slowly, is less umbrageous, and the wood is so hard that it scarcely yields to a knife; in one word, this apple tree occupies among others the place which the oak occupies among the forest trees. The great difference is in the fruit. That of the Stone Antonovka is not so long in form as that of the Antonovka ordinary; it is of a brighter color, and has a red tint on the side turned to the sun. The wind is unable to cause it to drop until it is ripe in September. The apple carries easily, keeps well until June without losing either its flavor or aroma; while the ordinary Antonovka loses its flavor and

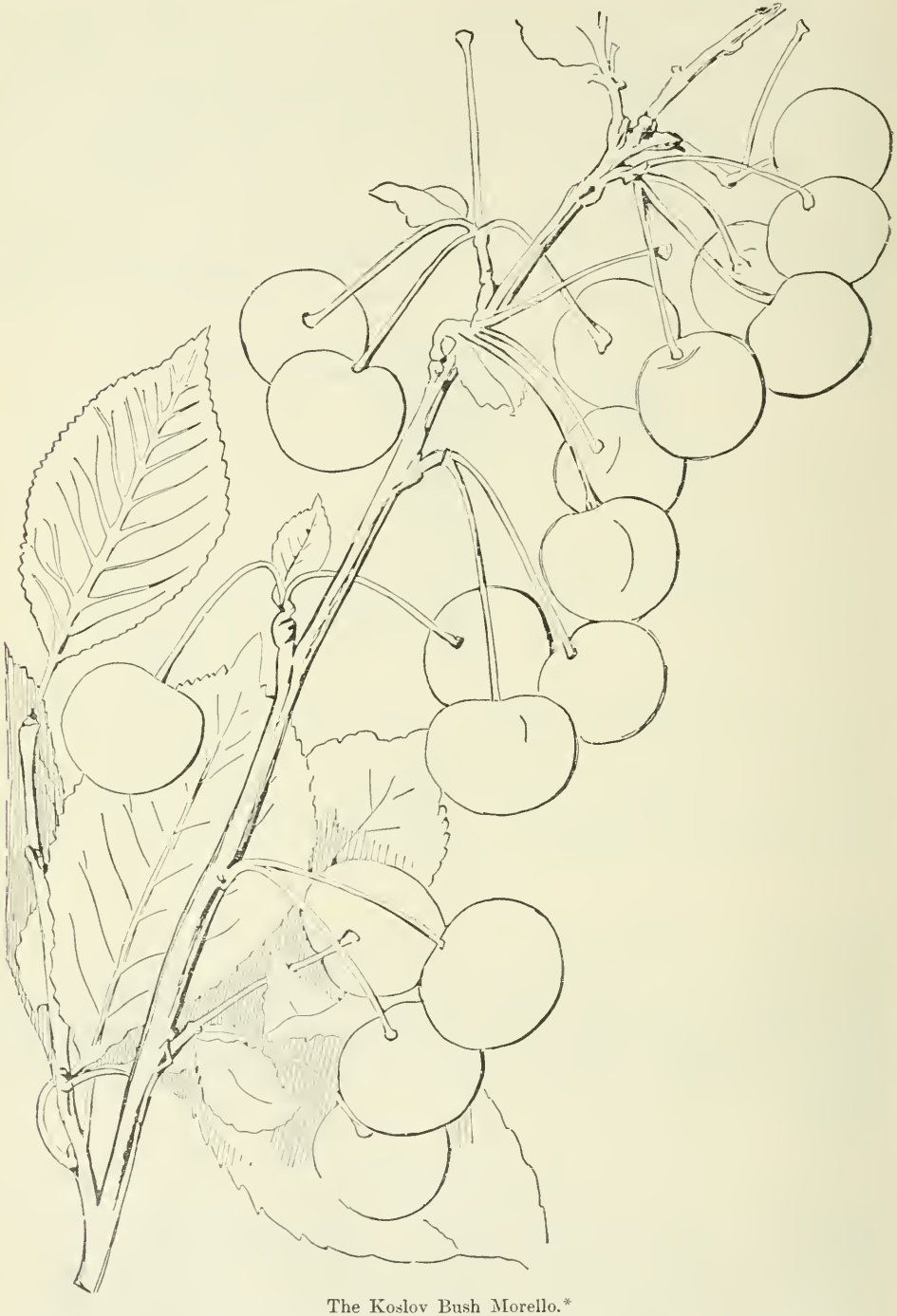


Stone-Antonovka.

becomes mealy. All these qualities have made the Stone-Antonovka a very lucrative product, especially in the gardens situated at a distance away from the great centres, and in the market it is more prized than other apples It is not by any mistake that this variety supplants all the others in our gardens. Perhaps the "Stone-Antonovka" is already known in America under some English name, if it is not I would advise the Canadian horticulturists to introduce into Canada that variety, which for its excellent flavor and ease af transportation, may become an article of export and as popular as the "Duchess."

II. Koslov Prolific Bush Morello.

The best Morello cherries suffer much from the cold in the gardens of Northern and Central Russia, indeed it sometimes happens that they freeze to the root, consequently the growth of the delicate varieties of cherries in the commercial gardens is impossible. It is with great pleasure that horticulturists have learned that an amateur gardener, T. W. Mitshourine, raises in the village of Koslov (province of Tamboff) two varieties, which are named in honor of the originator, "T. W. Mitshourine's prolific bush Morello," and "T. W. Mitshourine's Morello with small leaf." It is the former, which is the better that I wish to make known to the members of the Ontario Fruit Growers' Association' and I propose to name it, "Koslov bush Morello."



The Koslov Bush Morello.*

*This engraving is reduced nearly one-quarter.

The mother trees, which are in the gardens of the cultivator, are fifteen years old, have a height of one metre* and a half, the diameter of the very large head is two and a half metres, the trunk is three and a half inch. That tree flowers very late and gives without rest, each year, from twenty to thirty five kilogrammes† of fruit, which ripen about the end of August, a time when there are very few cherries in the market, which is an advantage from a commercial point of view. The fruit is large, the surface is polished and of a brilliant color, the flavor is an agreable acid, the flesh is juicy and the pit small. The originator does not grow this cherry by grafting, but from the pits, because, in grafting, this cherry loses in quality. The plants grown from pits do not vary, and after three or four times transplanting, bear fruit at the age of four or five years. The tree delights in shady places and is not affected by the cold, having already endured 35 Rea.‡ (46 below zero Fahr.) without any injury. I beg you to pay attention to this early fruit.

III. Pears.

There are some varieties of pears which can endure the rigorous climate of the north, of which I may mention the following: Bessemianka, Tonkovieska, Volga Bergamotte, and some others. They are of no great value, but they are cultivated because the better pears are tender. Lately, attention has been called to some varieties of pears from Lithuania little known here, viz: "Beurre Slutsk" and "Bon Chretien Sobiesky." These are dessert fruits and not yet tested with respect to hardiness. Two pomologists, so far as I know, are occupied in the acclimatisation of some varieties of table pears imported from foreign countries, viz: our renowned connoisseur of Russian fruits, Mr. A. Grell, of Moscow, and Mr. Mithourine, in the Province of Tambow; and their experience appears to me exceedingly instructive. I think it very suitable to quote a passage from one of Mr. Mithourine's letters. Here is what he says about the past winter and the hardiness of pears: "The past winter at Koslov has been unusually severe; it began without snow and found the trees still in foliage. The first cold was about 15 degrees Rea. (2 ° below zero Fahr.) and in the month of February it touched 32 Rea. (40 ° below zero Fahr.); and as a result all the pears have been frozen. The following kinds have endured this severity without any special protection, viz: *Foreign varieties:* Princess Royale, Beurre gris d'Ete, Beurre Six, Champagne longue, Souvenir de congres. *Russian varieties:* Beurre blanc de Livonie, Beurre verte de Livonie, Kvoschtchinskaia, Bergamotte rouge, Medviedievka. It is astonishing that any of the Bessemianka should have survived."

IV. The Rostov Pea.

The Russians are very fond of roasts served with sweet dried peas, and, indeed, of the latter in many ways. A variety under the name of the "Moscow," is grown in large quantities in Russia. The kitchen gardeners of Rostov, a town of the Jaroslav Government, are occupied with the preparation of these dried peas, and for this they have a native species, which is very sweet. This species, known as the Rostov Pea, is the very best for drying, being the sweetest of any European kind; even the English Marrowfat, or any other of the foreign kinds, are found to be much its inferior. Besides its excellent flavor, it is very productive and hardy, as are all the Russian vegetables.

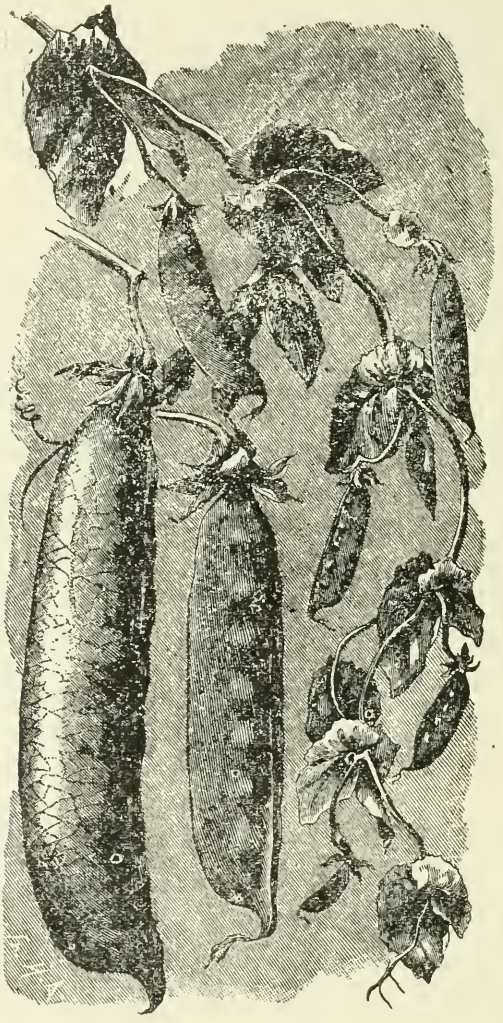
I will describe the Russian method of drying, and would advise all American ladies to give it a trial. All the young peas, before they are over ripe, are taken out of their pods, and put into a basket, which is speedily plunged into a cauldron of boiling water, and left for a few minutes. After the first plunging, the basket is taken out, shaken up, and then again plunged in. This is again repeated the third time. After this, the basket is plunged into cold water, and when taken out the peas are put on linen cloth, in an absolutely dark place, until they are nearly dry. Then they are put for final drying in a hot bakery. Any one having an evaporator can use it for this purpose.

*A metre is 39.368 American inches.

†A kilogramme is about 2 1-5 pounds avoirdupois.

‡Reaumur's scale of grading the temperature is chiefly confined to Russia; in it the freezing point of water is made 0°, and the boiling point 80°.

It must be remembered that for preserving the green color, which is the beauty of dried peas, the drying must be done in a dark place. For trials, on a small scale, a sieve can be used in place of a basket, and a large pot in place of a cauldron. I now send you a sample lot of the Rostov Pea, and if the members of your Association wish it, I can send you some more.



The Rostov Pea.

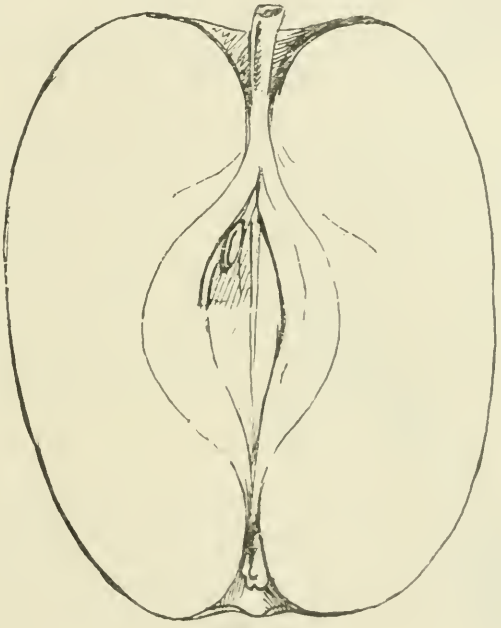
v. Crimean Apple "Synap."

The "Synap" is a very ancient Tartar species, propagated in large quantities at Crimea, where there are large orchards, some of them one hundred acres in extent, and Crimean orchardists prefer it for profit to all French Noble Reinettes. Crimea produces one million poods (one pood equals 36 kilogrammes*), and this quantity always sells at good prices in the markets. There are three varieties, all somewhat resembling each other in shape, which is oblong, viz :—1. Kara Synap, which is red, and of poor quality ;

*1. Kilogramme—2.20 lbs.

2. Sary Synap, which is the most widely cultivated and is perfectly hardy; 3. Kandyl Synap, which is somewhat larger and more handsome than the preceding one, but is not so hardy. The color of the Kandyl and Sary Synap is remarkably beautiful being white at the stem, and the remainder yellow with a red blush on the sunny side. The skin is lustrous, the flavor particularly pleasant and aromatic, so much so that the fruit may be eaten while yet immature. The fruit is harvested about the end of Septemqer, and ripens at Christmas, but will keep until the new crop is ready. At St. Petersburg, Moscow and Riga, in the month of May, when there is no other apple to be seen in windows of the shops and in the markets, the Synap is to be found quite fresh. There are often samples of the Synap to be seen which have been kept two years.

For firmness and consequent adaptability for transportation in large quantities, I do not know its equal in Russia, or indeed in all Europe. How it will stand shipment is proved by the fact that when there was no railroad in Russia, the Synap was exported



Kandyl Synap.

on carts from Crimea to the Siberian towns, Perm and Archangel, a journey which occupied from three to four months. Another good quality of the Synap is that it never rots. The tree grows in a pyramidal shape, like the Conifers, yields very large crops annually and thrives best in moist soil.

The question may arise, Why do I describe a kind, the origin of which is in Southern Russia, where the temperature is never lower than 10 degrees (Rea)? The Synap has been planted at the north, and has proved its hardiness during the last severe winter, when only the Antonovka, Anis, Duchess and a few other kinds escaped, while all others were frozen to the roots. Thus, the Synap remained uninjured when the temperature was 20 degrees (Rea.) It is said, however, the fruit is neither so aromatic nor of so handsome a color at the north. Perhaps so, but this apple, growing equally well at the south or at the north, will prove an excellent variety both in Canada and in the United States.

I send you scions for testing, both of the Sary and the Kandyl Synap.

VI. Russian and Ansjutin's Apricots.

The Mennonites were German colonists of Russia who emigrated to America because they did not believe in military service; they inhabited the southern Governments of Russia, viz: Karsonskaja with chief town of Odessa, Ekaterinoslavskaja and Crimea, which last was the central colony. In all these governments, grapes, peaches and apricots grow wild, and on the south coast of Crimea even the almonds and figs will succeed. Although sometimes there is a heavy frost in the governments of Karsonskaja and Ekaterinoslavskaja, and the grape requires protection in winter time, yet these countries may be considered well adapted for the cultivation of grapes.

In the above-named governments the apricot grows in vineyards, gardens and fields, into a large tree, and yields abundantly. The fruit is sold in the gardens for twenty or thirty cents per poud (one poud equals 36 kilogrammes). The fruit is used chiefly for eating fresh, and to some extent for preserving; no other use is made of it, because we Russians are not so ingenious in preparing fruit dishes as you are in America.

There are many varieties in southern Russia, of which the following are the chief, (1) "Holland red cheek" (probably raised from pits of the Breda,) a good large table kind, and (2) "Odessa," pale yellow, excellent, sweet and firm; a suitable apricot for preserving.

It is to be inferred that it was chiefly these two kinds of apricots which the Mennonites brought with them into America, as they were generally cultivated in the places from which they emigrated; and, therefore, that all American varieties of the Russian apricot have been raised from pits of the Holland and Odessa. The method of propagating them by pits is very popular in this country. The fruit of such trees is variable, but the trees themselves are more hardy than those propagated by grafting; they are also more productive and long-lived, and the acclimation of them to the conditions of any country is easier. The success of the Russian apricots in North America can be explain-in this way, though brought by the Mennonites from southern Russia, they are grown from pits. The difficulty of the acclimation of the apricot, the peach and the tender varieties of plums to cold climates, may be overcome both in north of Russia and in America by propagating by the seed and not by grafts.

No doubt it will at first produce fruit of poorer quality, but many among them will prove worthy of selecting for dissemination.

As I observed above, a seedling that has not been transplanted and whose tap root is entire, is the more hardy because it strikes deep below the reach of frost. The most northern point in Russia where the apricot succeeds, thanks to the labors of our experienced and eminent pomologist, Mr. F. Ansjutin, we must count Niegin, in Chernigovskajagov. His apricot originates in Crimea, and was raised from two pits brought away about the year 1840 by Mr. F. Ansjutin, who was at that time a young man. At first he tried propagating several foreign kinds of grafting. After these had all perished in the first cold winter, he noticed two seedling trees which were wholly uninjured by the cold, and after these had fruited he was so pleased with them that he raised a large plantation. I saw in his garden apricot trees like apple trees in growth twenty-five years old; they require no protection in winter; also a plantation of seedlings which had been raised in quite an open exposure.

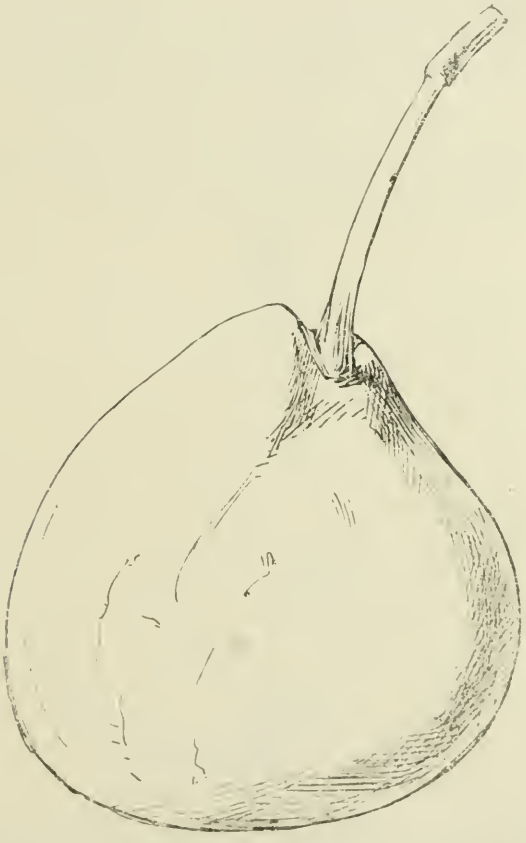
Frost is sometimes twenty-eight degrees (Rea.) at Niegin; the trees do not die even at that temperature, but it destroys the flower buds and consequently the fruit crop. Mr. F. Ansjutin raised, from two stocks, some varieties of which the four following are worthy of attention: (1) Apricot, large white, early (like Nicholas); (2) Apricot, small white, late, sweeter than preceding; (3) Apricot, yellow, large, early; (4) Apricot, yellow, small late. I sent you some scions and pits of these, the most hardy of all kinds. Next year Mr. Ansjutin promises to give me more of them for your respected Society. Many American nurserymen's catalogues call these seedlings of the Mennonites "the Siberian Apricot," and same gardeners in their fancy actually suppose it originates in the Blue mountains of eastern Siberia. These gardeners are in fault for inducing buyers to purchase by such ridicu-

lous mis-statements. We should be very glad if not only the apricot, but the orange also would grow in Siberia; but to our sorrow it is doubted whether any fruit trees will grow there except Siberian crabs and small inedible wild pears.

I find that the name "Russian" Apricot is not proper, because it would lead one to suppose that it will grow at Moscow or at St. Petersburg, which is not the case. A better name would be the Crimean Apricot, from the place where it originates.

VII. Bohemian Queen Cherry.

The cherry pits which I sent you are taken from the fruit of the celebrated "Bohemian Queen," which I propagate on account of its excellent qualities and its hardiness. As a market variety it is unequalled. It is an abundant cropper and the fruit is



The Sapieganka Pear.

of excellent flavor, larger and more fleshy than that of the Ostheim, which some years is dry and therefore poor.

It is more delicious than "Frauendorfer," or "Double Natt," and even the "Large Spanish" can only be compared with the Bohemian Queen in point of size, and not in productiveness or flavor.

In quality there are only two new kinds that can be compared with it, viz: (1) Cerise D'Olivet, large, sweet and delicious, and (2) the well known Empress Eugenie. The introduction of this cherry is the most important matter, because it can be propa-

gated, like Ostheim, from seeds or root suckers. Sixty per cent of the seedlings are constant. It succeeds well in places where the ground remains moist until the month of May.

VIII. The Sapieganka Pear or Autumn Polish Bergamotte.

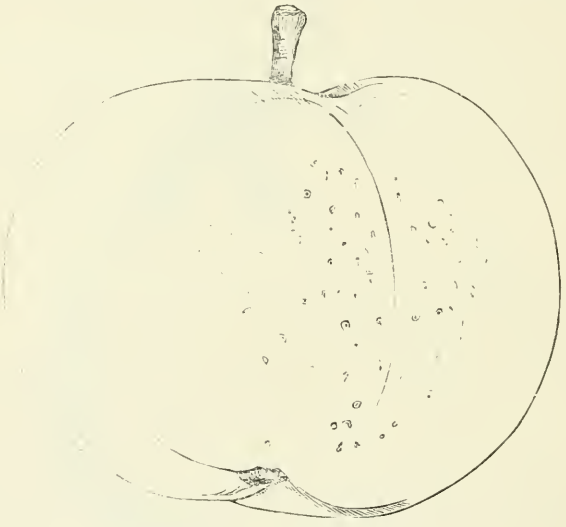
I give a description of this pear, not on account of any particular prominent qualities which it possesses, but because I am of the opinion that on account of its hardiness it may be successfully grown in Canada.

In its home in Lithuania, old and large trees are met with which have endured many severe winters. In the Tamboff Government it is the most hardy of all pears there grown, and for this reason the Sapieganka can be positively considered a hardy variety.

The fruit is of middle size, of Bergamotte type, the skin is smooth, yellow and has a red cheek on the sunny side. In Luthuania it ripens on the 1st of September, in the Tamboff Government in October, and keeps in the cellar two months. The flavor of the flesh depends upon local conditions, for though it is tasteful enough in the warmer districts, it is sometimes harsh ; and when grown in the north it is juicy and buttery. The fruit is adapted for the table, drying and other home uses. The pear is recommended by Russian horticulturists as being adapted for cultivation in market garden.

IX. Babuskino or Grandmother Apple.

This Russian apple may be classed with the best winter varieties. I think it is known in America, perhaps under some other name, but with us this is its only one.



Babuskino or Grandmother Apple.

For localities, where the high winds prevail, there is no better variety than this, because the fruit has such a tight hold upon the tree that the most vigorous storm cannot knock it down.

The tree is a spreading grower, has a large leaf, is hardy and very productive. The fruit, which hangs firmly by its stem, may be gathered about the first of October, at which time it is quite green and flavorless. About Christmas time it becomes a light yellow color, with a little red, and by spring it becomes a rich yellow with a deep red blush, covered with small russety dots. It keeps in good condition until the end of June and even later. At maturity this apple has an excellent flavor, with an especially agreable degree of acidity. The flesh is very juicy and aromatic. It is little affected by the curculio, probably because of its thick skin.

As yet, this apple is not very widely disseminated in Russia, but those fruit growers who have found out its merits prize it above any other. I am of the opinion that in Canada, also, it would soon become the chief market variety; therefore, unless you have it already, I will be glad to send you some scions.

x. The Hamburg Pear.

This pear is growing in Chernigov Government, having been brought there from St. Petersburg. It is a pear of the Bergamotte type, not large, yellowish green in color, with russety dots, juicy, of pleasant flavor and ripens in September. It may be kept in the cellar for about three or four weeks.

As there is such a small selection of really good pears that can endure severe cold, the Hamburg has considerable value for horticulturists in cold countries. It has

The Hamburg Pear.

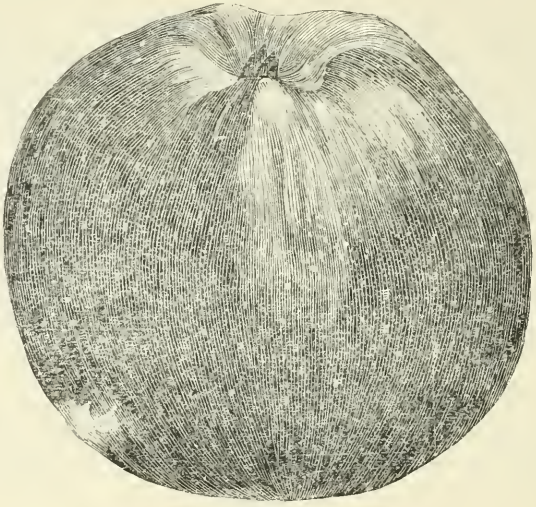
been well tested in the Chernigov Government and has been found to be perfectly hardy, while most other varieties entirely succumb. This is explained by the fact that its flower-buds are firmly closed and, therefore, not sensitive to the action of the frost. I have sent you cuttings of this variety.

xi. Grand Duchess Olga.*

This is one of the best Russian winter Reinettes, and our celebrated pomologist Lieb has given it the name of Grand Duchess Olga; the same apple is also known in Germany as "Reine Olga." In the gardens and markets it is usually called Little

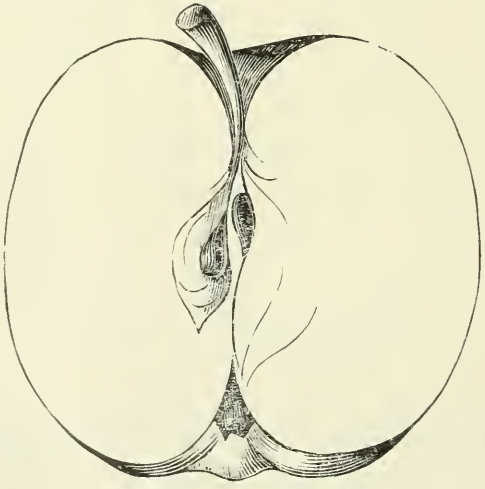
*The Grand Duchess of Russia is now the Queen of Wurtemburg.

Crimean Apple, Red Crimean Apple, etc. The fruit is large in size, and has a pleasant aroma; the skin is thick and quite smooth. The color at the calyx is green; the rest of the fruit is beautifully shaded with deep carmine dots and stripes on golden yellow ground. Whitish dots are observable on the red ground. The closed calyx



The Olga.

is usually surrounded with five characteristic humps, which do not extend over the surface of the fruit and therefore do not change its round form. The flesh is yellow, fine grained, juicy, of pleasant vinous flavor, and delicious. It ripens in March and keeps till July and even later. It bears shipment well, and is very little affected with



Section of Olga.

worms; indeed, it possesses every quality which a commercial apple should possess, for it is suitable both for dessert and cooking purposes. The tree is hardy, being able to withstand not only great cold, but also extreme heat and drouth, grows rapidly while young, and is very productive. It is also an early bearer. I can highly recommend this kind to you.

XI. Exhibition of Fruits at St. Petersburg.

In the month of October, 1890, the Imperial Society of Horticulture held an exhibit at St. Petersburg. The department of fruit growing and decorative horticulture was excellently arranged through the efforts of the skilful gardeners who have charge of the well stocked hot houses in that city, but, on the other hand, the section of fresh fruits was a comparative failure, there being only some forty-two exhibitors.

The finest fruits were those shown by Polish growers, and particularly those from the Warsaw State Pomological Garden, which received very high commendation. All the Polish fruits were correctly named, well formed and large, whereby one would judge that fruit growing in Poland is in a good and prosperous condition. The fruits, however, were mostly tender varieties grown under glass, few native sorts being among the exhibits. Among these latter were some pears, and a winter apple under the name of Glogierowka (of pigeon class). It is a very beautiful apple of excellent flavor and the fruit growers of Warsaw consider it to be one of the best of their hardy and productive dessert sorts.

From Lithuania and Western Russia there were very few exhibits, none worthy of special mention. Crimea showed very few fruits from her commercial gardens; her exhibits were mostly French varieties of pears, peaches, grapes and nuts, which are exported into the northern districts. Of apples there were some very good local varieties of the Synap, and two very beautiful and delicious Crimean apples, Gulpembe and Chelebi, scions of which I sent you, also a large filbert, known here as Bomba.

From Caucasus there was only one exhibitor, who showed some forty six varieties of apples and twenty-four of pears; most of these were local kinds. Of pears, one variety attracted everybody's attention on account of its enormous size, the Tash-Armud, a local Tartar name. It is an excellent, juicy, autumn pear, of about three pounds weight. Caucasus is little known in pomological circles, and it is interesting to know that many quite new sorts of excellent fruits grow there, some without any culture, and even in its forests. In course of time, this country, owing to its favorable climate, will become one of the principal centres for growing apples and grapes; even now it exports a large quantity of wine into France.

The exhibitors of Russian fruits from the northern governments were very few, and from some there were no representatives. In all the exhibits were met such wide spread and popular varieties as the Antonovka, Borovinka (Duchess), Titova, Aport (Alexander), Anis, etc. These typical kinds are known and distributed throughout the whole of Russia, and have reliable names, but other and less known varieties have numerous local names. The most beautiful and perfect apples were from Tula and Luga.

A large collection of apples were exported from the garden of Doctors Regell and Kesselring. Fifty-three of these varieties were seedlings of Dr. Regell's own raising. The fruits were small and poorly colored, and would not tempt anyone to go into fruit growing in the climate of St. Petersburg. From such a prominent pomologist as Dr. Regell, we were really expecting something better.

The following are some of the Russian fruits, among those exhibited, which I consider worthy of mention:

1. From the government of Riasan there were three beautifully colored seedlings of the type of the Crimean Synap, and of the true Chernigov. In your country, and almost everywhere abroad, this apple is known as Borovinka (Duchess.) These apples differ in this respect that the Borovinka is much superior to the Chernigov.

2. From the same government a kind of Anis, the calyx of which is closed entirely.

3. From the Kasan some new local varieties, among them a good-sized Siberian crab.

4. From Chernigov a winter apple, Woloshka, of good quality, resembling Titovka.

5. From St. Petersburg government Aport Riepchatz, a special kind of Aport (Alexander); Metla, a new sort; two varieties of Stone Antonovka one an oblong and the other flat. Besides these, there are exhibited a red autumn plum, growing freely without winter protection.

The whole exhibition was of no special use to Russian horticulture, excepting to the exhibitors themselves, who received a large number of rewards.

The earnest fruit growers expected that by means of such a large collection of Russian apples from the whole of Russia, it would be possible to establish, once for all, a correct nomenclature, and thereby put an end to the chaos of names given them at the whim of gardeners; but the Imperial Society of Horticulture, upon which rests the responsibility of conducting its provincial divisions, did not stir up this important question. It is therefore set at one side, possibly for a long time, and in consequence nobody is in a better position than before to judge of the most suitable kinds for each government of this empire with respect to the hardiness and other qualities of the several varieties, a thing which is of the utmost importance to our country.

XII. Uriuck Apricot.

In the Russian provinces of Central Asia, Bokhara, Khiva, Turkestan, and even as far as the boundary line of China, is met, both in the wild and the cultivated state, a variety of apricot, known locally as Uriuck. As I am better acquainted with the Semirechenskaja district, with its principal town Vjerny, than the other districts in Asia, I will, therefore, make some observations on this apricot as grown in that locality. I think it necessary to observe that Vjerny and its suburbs have a climate subject to great drouth in summer and extremely cold north-west winds in the winter, and frequently there are very sharp changes from heat to cold.

The Uriuck apricot is growing at Vjerny in wild situations in the woods, where there are still to be found very old trees which endured the severe winter of 1877. They have thick trunks about one meter in diameter, with low, broad, but roundish, heads. But such giants are only left in protected places. The cultivated Uriuck is grown in the gardens of Vjerny, as also in other places in Asia, entirely from seeds. Previous to the occupation of this country by Russia, the Uriuck was the chief fruit grown in local gardens. Now the inlanders have learned from the Russian people how to grow other varieties of fruit also, especially the popular Alexander apple. They sow the seeds of the Uriuck directly in the place where they wish the trees to grow, usually in the time of the season when fresh gathered from the fruit, spring planting not being so favorable. The Uriuck does not bear transplanting well, because the trees thereby become more bushy and liable to injury from gumming. As soon as the stone opens, it sends out long, vertical roots, which take hold deep down in the ground and supply the plant with water during the extreme heat of the summer. The seedling soon grows up, if there is sufficient moisture, and throws out lateral twigs on the lower part of the trunk. The seedling should be pruned in the second or third year, or else these lateral twigs dry up and render the trunk unsightly. In the third year the seedling usually blooms for the first time, the flowers being small, white, or rose-colored, and in the fourth year it bears fruit. The Uriuck blooms earlier than other fruit trees and sheds its bloom sooner. The time of ripening of the Uriuck at Vjerny begins in July; the wild variety in the mountain ripens later. The color of the Uriuck is orange yellow, blushed on sunny side, though not always. In the ripe fruit the stone parts freely from the flesh. In taste, some are sweet, juicy and aromatic, not inferior to our apricots, others are inferior in quality.

There are many varieties of Uriuck which, in general terms, may be divided into wild and cultivated. Usually the wild Uriuck bears a small fruit, oftener round than oval. The color of this is dark green; the kernel of the stone is sweet or bitter in taste. The cultivated, or improved varieties of Uriuck are a larger fruit, often oblong, leaf lighter, but the kernel of the stone is not always sweet, occasionally it also is bitter.

It is the general opinion that the best sugar Uriuck grows in Vjerny, being brought there by the Sartes. These are a people of ordinary intelligence, occupying the lovely fruit-growing and kitchen-garden district. They have also very good vegetables, especially melons. The Sartes brought the sugar Uriuck, from South Turkestan. It is a variety much resembling that grown in our European gardens. There are also many other varieties of Uriuck, but there is no great difference between them. They are sold under the name of gargens, where they were raised. In China, they are growing several

varieties—but chiefly four, two early and small kinds, known as the Kandak Uriuck and Khasake Uriuck, white and two late, large, very delicate kinds, Pivande Uriuck and Pchar Uriuck (yellow with rose blush).

In the outskirts of Vjerny we still meet occasionally with the Black Uriuck (Prunus Armenica), which grows at the town of Djargent, situated at farthest border toward China. The trees bear large fruit, almost round and almost entirely brown in color, The stone is not free. In taste it resembles a plum more than an apricot.

The people living in the inland use the Uriuck fresh and dry it for winter. The Russian ladies cook the Uriuck green in sugar until the stone is soft, and in such a state it is also pleasant to the taste. The Bucharians dry a great quantity of the Uriuck apricots in the sun, and their trade in this article is large. It is brought on the markets from Northern Siberia and from the governments bordering on the Volga. It is possible to buy dried Uriuck even in the market at Moscow.

But, as a garden tree about Vjerny and the outskirts, the Uriuck is the favorite, on account of its early growth, and its merits for cooking, for which purpose it is largely grown. The wood of the Uriuck is also valuable as a material for wood work. Things made from it are very beautiful, but very heavy.

With regard to the hardiness, a Russian officer who lives in China, P. Alexanderovsk writes, speaking of its hardiness. He says : "In the years 1888 and 1889 heavy frosts continued for about two months, from the middle of December until the middle of February. Some days it was–37F., occasionally it was + 5F. to –2F. In February a south wind blew and the thermometer rose one or two degrees. Afterwards it soon fell to –13F. Notwithstanding such severe changes, only the old trees of the Uriuck were injured, and this not everywhere. Young trees came out all right, just the same as if there had been mild weather. Rich people living inland had no crop, but the poor had

The Uriuck Apricot.

every tree full of fruit, and early varieties are very heavily laden, At first view, this is difficult to explain, but the fact is that riches and poverty are measured in China by the quantity of water controllod. Rich people watered their grounds during the whole summer, but the poor watered theirs very little on account of the scarcity. I am inclined to think that it is almost certain that the luxurant growth caused by the frequent waterings was the cause of their failure to the fruit."

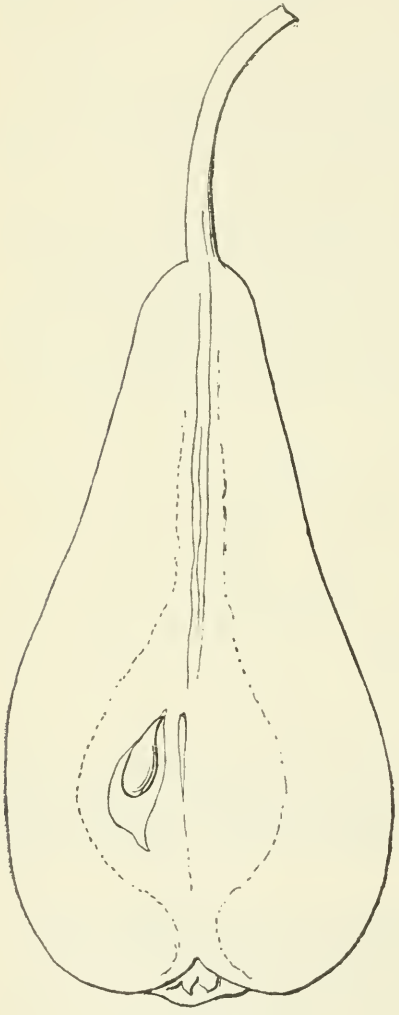
I shall be much pleased if the Fruit Grower's Association of Ontario, of which I have the honor to be a member, will call public attention to this useful fruit. It will be a gratification to me to see the time when the Uriuck apricot will occupy in the orchards and gardens in your country, a place along with the other highly prized novelties. I send some pits of the Uriuck apricot. The illustration accompanying this article represents the fruit of medium size, and pits of various sorts.

XIII. Some Hardy Pears.

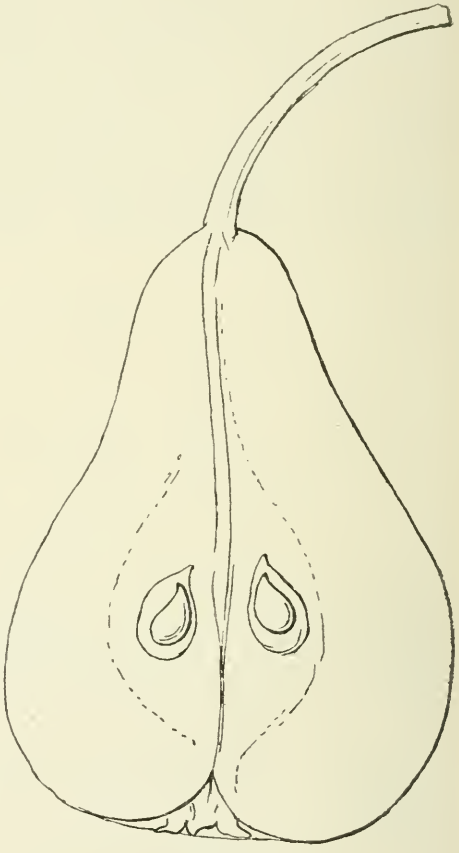
In the gardens of northern Russia the cultivation of pears without protection is very difficult, indeed, almost impossible, with the exception of a few varieties. From this it may be understood why our northern gardeners are so much interested in all

hardy pears, without very much reference to the quality. On this account I gave a list of foreign pears which grow freely without protection as standards in northwestern Russia and Poland. Of course the seedlings on which they are grafted increase their hardiness. The best wild pear, to be used as stock for these pears, is Tenkovitka, which is not affected by the cold even north of Moscow. It is a strong, upright grower.

Dr. GRELL, one of our pomologists, who has established in Moscow an acclimated garden where he is growing foreign and tender pears, grafted on the root of *Crataegus Oxyacantha* and *Sorbus Aucuparia*, and where he is endeavoring to show that this method of



LONG PEAR.



BUERRE ROMAIN.

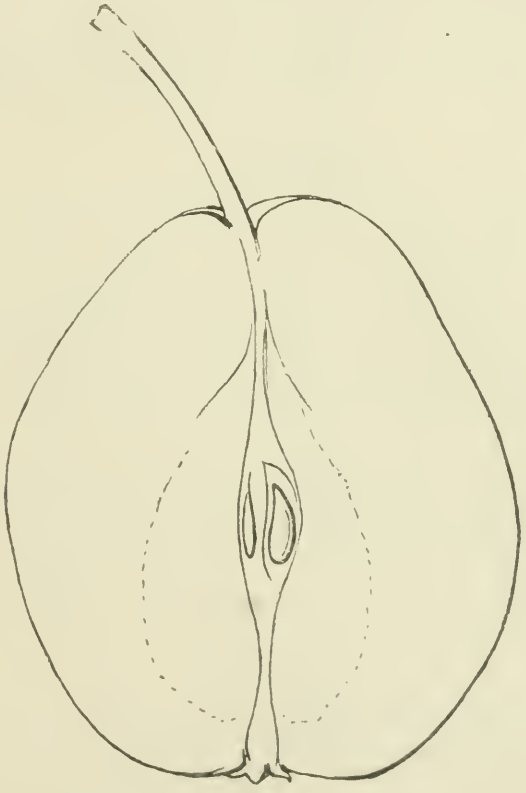
treatment has great possibilities for gardening in the north. So far he has received no positive results.

The following is a list of some hardy and excellent foreign varieties of pears growing in Russia.

1. Pana (Polish name) Krasaoka (Beauty, Russian name). In Germany it is called Langbirne; in France, Vermillon Estranguillon. German pomologists describe it as being of Swiss origin. It is very widely cultivated, growing as much as two

thousand feet above the surface of the ocean. Judging by the old trees which I have seen this variety has been known long in Russia, growing principally in the western governments and Poland. In form the fruit is long and of a peculiar shape. The skin is lemon yellow with a blush on the sunny side, which is sometimes lacking. The flesh is white, very juicy, but not buttery, sweet and agreeable, ripening in the end of August or the beginning of September, and if picked early will keep a couple of weeks. It is principally good for eating, and also useful for drying or perry. The tree grows to a large size with straight branches and is productive in good ground. In the north-western governments I never knew of this pear being winter killed at any time, and it even endures the cold in Chernigov and Kirsk, where it is being widely distributed. I hear that it is succeeding in Moscow, and I suppose it will succeed in Canada, but I do not wish at present to place it in the hands of your large commercial nurseries.

2. Red Panna, Princess, Beautiful girl in Russia; Romishe Schmalgbirne in Germany; Beurre Romain in France. It is of unknown origin. In western Europe all the markets are full of it, although it cannot be called first-class and buttery,



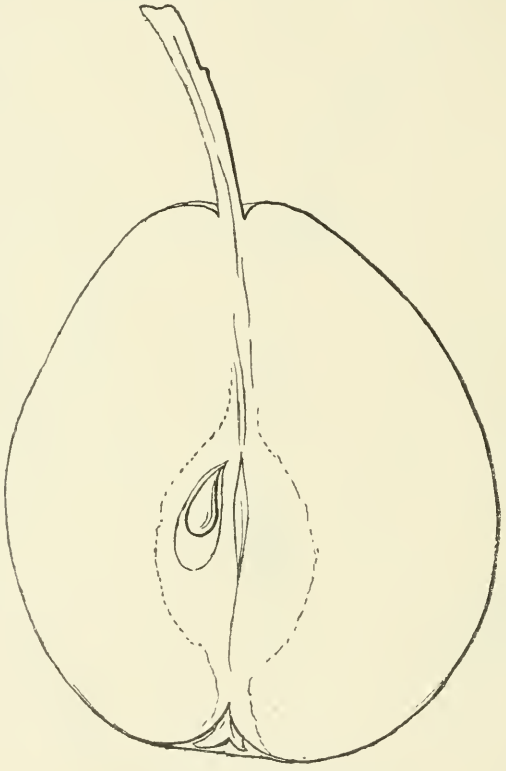
Slutsk Pear.

beurri, as the French say. The flesh is agreeably sweet, a little gritty when ripe and soon becomes mealy. The color of the skin is yellow, with red side, on which there are little red stripes The tree is not as large as the former sort, but gives a good crop annually. In north-western Russia it winters well, and is grown in many gardens of central Russia.

3. White Doyenne. Of this pear I shall say little as it is well known. It is considered hardy in Russia and is widely distributed in Poland. Near Riga there was originated a seedling which was named by gardeners there Beurre blanc de Livonie, and in

quality and shape it resembles its parent. This variety is remarkably hardy, and for this reason I call the particular attention of Canadian fruit growers to it. It is hardy as a standard, without any protection in Kirsk, Orel, Tambov and Voronej. The winter of 1888 was very severe without snow, the thermometer reaching 40° below zero, F., injuring even the hardy Bessemianka, but the Beurre de Livonie was uninjured. The tree is a moderate grower; the buds are grouped on the ends of the twigs in clusters of five, so that the tree is very beautiful when in fruit. The fruit does not drop from the tree even when ripe. Altogether this tree combines so many excellent qualities that it will be one of the most highly valued in northern Canada.

4. Slutsk. This received its name from Slutsk in Minsk government, near which place it grows in large quantities. Its origin is unknown. Probably it is an acclimatized French variety, or a seedling of some foreign table pear. The fruit is of medium size, variable in form; the skin is green with carmine stripes on sunny side



Liegel's Winter Paar.

when taken from the tree, yellowing when ripe. The flesh is juicy, white, delicious. The fruit is good for use at the end of October, and keeps till April. The form of the tree is characteristic, growing very upright in conical form, with thick almost vertical branches. The trees grow very large and bear annually. In Chernigov it endures the cold without protection. Fruit growers in Russia are paying special attention to this new and comparatively little known variety.

5. Beurre Blumenbach (Soldat laboureur). This variety is large, excellent in taste, and ripens late in the autumn. It is an annual bearer and a very productive pear and very hardy. I have old trees which are perfectly healthy.

6. Flemish Beauty (Fondante de bois). This is usually counted very hardy; at 22° below zero, F., of cold the tree does not suffer. I know that positively, but perhaps it might

endure more frost than that. This variety is now so largely grown in Russia that it no longer brings its former high price. My trees do not produce fruit in the same quantity every year. In quality they are variable. Beurre Blumenbach is a better pear and more productive.

7. Nina (Elizabeth de Van Mons, Manning's Elizabeth Beurre de Jelles). One of our best varieties of summer pears; yellow, blood red on sunny side, melting, of excellent agreeably sweet taste. This variety ripens in August and keeps a couple of weeks. The tree is not large, but is productive and hardy, enduring the climate of Kersk and Chernigov; good variety for market; very beautiful and delicious, but the tree is not very widely distributed.

8. Liegel's Winter Butter Pear (Supreme Coloma Kopertsche). This variety is commended by the German Pomological Society. It is very hardy and suitable for commercial orchards. The fruit is large, greenish yellow, somewhat buttery and agreeable mushy taste. It keeps until January. The tree is pyramidal and an annual bearer. The fruit, notwithstanding its size, does not drop early. Formerly Moscow imported a large quantity of this fruit, but now it is grown widely in western and northern Russia and in Poland, at Roon. The young twigs endure 25° below zero, F. This pear, which is highly prized in Europe, I do not notice in your American or Canadian catalogues.

Descriptions of other hardy varieties of Russian pears will follow. Scions of these which I have here described I have forwarded to you.

XIV. Winnitza Rambour.

(Sent to Canada under the name of Niemetz' Winter Rambour)

The tree is of uncertain origin. I found it in a garden which I purchased some time ago and Russian pomologists think it is a new variety of the class Rambour, and gave it the name of the place where it was found.

The fruit is roundish, ribbed at the cavity, light yellow with a slight blush, often without it, or with only a rose stripe. Flesh almost white, very firm, sub-acid, moderately juicy and of an agreeable flavor. The seed vessel is very small compared with the size of the fruit. The fruit ripens in October and keeps till January in perfect condition.

The tree is spreading, pyramidal in form, an annual bearer. In size and weight it is one of the largest apples in the world. I have frequently had fruit as much as 14 centimeters in diameter and $2\frac{1}{4}$ to $2\frac{1}{2}$ pounds in weight. It is difficult to grow such large fruit on a standard tree and for this reason I propose to grow it in the dwarf form on which it reaches a larger size.

It is a very suitable kind for exhibition, but for the table it is not so desirable.

XV. Lithuanian Pippin.

This apple has been a long time in Russia, but, notwithstanding its excellent quality, it was for a long time unappreciated. Now our new society of Russian fruit growers, with its president, Grand Duke Nikolaus, cousin of the Emperor, drew attention to this excellent variety and made an exact description of it, giving its true value. I send you scions of this apple under the name of Tirol apple (see Canadian Horticulturist, 1890, page 190) It is also called Glogiernoka in Poland, Hungarian Rosemarine, Tirolka, etc., but the Russian Fruit Growers' Association determined to name it Pippin of Lithuania, as this apple is grown there in large quantities, and from there has been distributed into other parts of Russia. It is supposed that this kind occasionally grows true from seeds of the Tirol-Rosemarine, while others confirm that this is impossible.

The description of the fruit is as follows: Fruit large on young trees and of medium size on old ones, irregular, oblate; in shade it is yellow, even almost white, on sunny side it is beautifully painted with a carmine blush, and generally is a beautiful apple to behold; flesh white, juicy, tender and highly flavored. The fruit in quality is not inferior

to that of the Rosemarine apple that is brought from South Tirol into Petersburg and Moscow and which is bought at a high price. It ripens in September and keeps till January in a good cellar, and even longer. The fruit is easily knocked off by the wind before it is ripe, and so find their place on the markets early in the season, since they color before they are ripe and have a good flavor and soon become in good condition for eating.

While young the tree grows rapidly, but does not live to a great age. It is an early fruit bearer. The leaf is of a grizzly green color and so characteristic that it is easily recognized by this and by the form of the tree. I consider the Lithuanian Pippin the best Russian apple in flavor and very valuable for the amateur's garden, but as a shipping sort is less suitable on account of its tender skin that demands very careful packing for transportation.

INSECTS INJURIOUS TO FRUIT DURING THE SUMMER OF 1892.

By James Fletcher, Dominion Entomologist, Ottawa.

Although there have been no outbreaks of injurious insects during the past summer, which demand special mention, still there are a few items which it seems to me are of sufficient interest to fruit-growers to be brought before the members of the Association on the present occasion.

Spraying with Paris Green. The experience of the past season have proved again the extreme value of this insecticide, and the safety with which it can be used when ordinary precautions are taken. With the assistance of the Editor of the *Canadian Horticulturist* and Mr. F. T. Shutt, who analyzed carefully some fruit which had been sprayed in the manner and with the mixture of the strength recommended by entomologists, it was proved that the statement made in some of the newspapers that sprayed apples were dangerous for use, was quite untrue. Not only was it proved scientifically by chemical analysis, but common sense shows that these statements are absurd, and the fact that the English market has in no way been affected, demonstrates that this view is also taken in England, whence these false reports emanated. I will now draw attention to the following facts. One pound of Paris green to 200 gallons of water is the strongest mixture which needs ever to be used. This quantity of water is sufficient to spray a great many trees—a tree of the ordinary size takes from one to three gallons—and these trees bear many hundreds of apples and thousands of leaves, so that there would be only a very minute quantity of poison on each fruit. Even supposing soluble arsenic were used and every apple were covered with it, none could get into the apples. At the time apple trees are sprayed, the fruit is very small, indeed, hardly formed, and is then protected from anything falling on it *by a thick covering of down* and *the spreading lobes of the calyx.* In spraying, the liquid is applied as a very fine mist; most of this falls on the foliage; but some—a minute quantity—falls into the open calyx, where the eggs of the codling moth are laid. It is an infinitesimal quantity, yet it is sufficient to destroy the insect if it be there, as frequent experiments have shown us. As to the time of spraying—this need never be done while the trees are in flower. The proper time is after the petals have fallen.

Spraying with Paris green is a useful remedy against all insects which attack the foliage, and it has been lately proved that a small quantity of milk of lime added to the mixture materially reduces its corrosive effects upon vegetation.

The Canker-worms. These are the caterpillars of two small moths which have been complained of in some localities. Last spring they were very abundant about Ottawa, but were not so injurious in orchards as in the surrounding woods, where they attacked particularly ashes and basswoods. The best remedy is undoubtedly spraying with Paris green.

The Eye-spotted Bud-moth. This has been very destructive in orchards for some years. Probably the best remedy is spraying with Paris green very early in the spring, just after the buds burst, but before the flowers open. The young caterpillars pass the winter upon the twigs of the apple trees, protected by a silken case.

The Apple-leaf Bucculatrix. (*Bucculatrix pomifoliella.*) This insect is reported in large numbers from St. Catharines, where they occurred on apple and peach trees. The white elongated ribbed cocoons may be found upon the bark during the winter. The moths emerge from these in the spring, and the eggs are laid on the leaves in May. When the caterpillars are numerous they frequently do a good deal of harm, but they seldom remain long in any one locality. Spraying with Paris green in June is the best remedy.

The Fall Web-worm was one of the most noticeable orchard pests of the year. It did not, however, confine its attacks by any means to fruit trees. The eggs are laid in clusters upon the leaves of a great many different kinds of shrubs and trees in July. The eggs soon hatch, and the young caterpillars at once begin to spin a protecting web. They grow rapidly and remain almost entirely in their tent until just before they attain full-growth, the web being enlarged as they develop. The webs are conspicuous objects from the very first. From the social habits of the caterpillars a whole colony is easily destroyed by cutting off the nests and trampling them underfoot.

Pear-leaf Blister Mite. (*Phytoptus pyri.*) An insect which is giving a considerable amount of trouble in Canada at the present time is the Pear-leaf Blister Mite. It is, however, so extremely small that few people at first recognize the injury as due to the attacks of an insect, and in nearly every instance the blistered leaves have been sent in as specimens of a fungous attack. The mites, which are hardly visible with the naked eye, emerge from the scales of the leaf-bud early in spring and attack the tissues of the unfolding leaves. The blisters soon begin to show as small red spots, each of which has a small central hole on the lower side of the leaf. The eggs are laid inside these blisters, and the young escaping through the central opening at once form new galls, until sometimes the greater part of most of the leaves is rendered unfit to perform its functions. When mature the galls are brown and spongy in texture, and are raised perceptibly above the surface of the leaf. Before the leaves fall, the mites leave the galls and secrete themselves beneath the scales of the winter buds, where they remain throughout the winter. As a remedy, kerosene emulsion seems to be the only substance which up to the present time has given any promising results. Mr. M. V. Slingerland, of Cornell University, treated two lots of trees, one with pure coal oil, another with kerosene emulsion, containing 20% of kerosene, and then compared these with an untreated tree. In the spring the mites appeared in force on the check tree—but there were hardly any on the treated trees. Those treated with kerosene emulsion were uninjured, but those with the pure coal oil were perceptibly injured.

Imported Currant Saw-fly. (*Nematus ribesii.*) The currant worm has this year received a severe check at Ottawa from a minute parasite belonging to the genus *Trichogramma.* Many years ago Dr. Lintner, of New York State, bred one of these minute insects from the eggs of the Imported Currant Saw-fly ; but from that time on, it had been a rare insect. This year, however, another species was found at Ottawa in considerable numbers. It may be well for fruit-growers to remember that when eggs of the saw-fly are attacked they turn black and shining. If, therefore, any of these are observed on the leaves, they should be carefully preserved, so that the beneficial parasites may increase. Species of the same useful genus also did good service in destroying the eggs of a destructive saw-fly on willows in the botanic garden at the Experimental Farm, and also of another pest of the garden, the Zebra caterpillar (*Mamestra pictd.*) Thousands of specimens were bred from the egg-clusters of this last insect.

SHEEP AS ASSISTANTS TO THE APPLE GROWER.

An address given at Grimsby Park, before the fruit growers and farmers of Ontario, by J. S. Woodward, Lockport, N.Y., by special request of the Association.

Apple growing is one of the most important branches of horticulture in our country and yours. There is no way in which the same amount of land will yield the same amount of human food as by planting an apple tree upon it; and there is no food that is better for mankind than the apple. Consequently, it is to you and to us one of the most important branches, not only of horticulture, but of farm husbandry.

My theme suggests, first, that the apple grower is in trouble and needs assistance. Is it true, or is it not? Nine-tenths of the orchards that are planted nowadays are planted on old soil. Not content with that, the orchardist continues to crop them year after year, removing crops of apples and other products.

Now, in doing this, he has taken from the land the elements that are necessary to the production of apples. One hundred barrels of apples take away thirteen pounds of nitrogen, seven pounds of phosphoric acid and seventeen pounds of potash, and no part of this is ever returned to the land from which it was taken. And that is not the worst, because the poorer the fruit, the more of these elements do you take away. They exist mostly in cores, stems and seeds—the flesh of the fruit is almost all water, so the poorer the fruit the larger the waste of these elements. The leaves take more of these three elements than the fruit; and the leaves are nearly all blown away, so that no portion of these manurial elements go back to the tree.

In coming along in the train this morning, instead of the rank, strong growth and thick, dark-colored leaves which indicate health, I noticed in so many places that the leaves were small and yellow, showing that something is lacking. Worse than that, a large part of the orchards were growing grass and hay. The trouble is, men are too avaricious. They have cropped their orchards, removing crops of grain, grass or vegetables and crops of fruit, and returning very little, if any, manure to the ground to replace what has been taken away, thus literally starving the orchards to death. Years ago we expected a crop at least every two years; now we are happy if we get a crop once in four or five years, and the fruit is diseased and eaten up by insects. Surely the apple grower needs assistance. From what I have said you can easily see that the greatest need in the orchard is fertility in the soil. The question is, how shall we give it. How can we manage to get back the fertility which has been taken away from year to year? We can make the tree healthy and productive by the application of commercial fertilizers, but the question is, can we afford to do it? Every ton of commercial fertilizers bought mortgages our crop to the extent of the cost of it

There is nothing better for the orchard than the ordinary stable manure; but can we afford to apply even this, if we have to buy it? If we buy stable manure we just as surely mortgage the prospective crops, and before we can get any profit we must pay the mortgage. Is there not a better way? We shall see.

There is another principle involved, and that is, that two bodies cannot occupy the same space at the same time. This is true in the orchard. We cannot grow two crops in our orchard at the same time. As the result of cropping it with grass, the hay robs the trees, and they succumb to the evil influences of the grass. Either cut down the trees and crop the land with something else, or else keep off the other crops and devote the whole to apples. Apples and other crops cannot be profitably grown upon the same field at the same time.

If an orchard be kept in complete and thorough cultivation, it is too expensive. If we attempt to keep the weeds cut down, that, too, is expensive; so you see we are in a dilemma. Sheep, if properly kept in the orchard, will keep down the weeds and grass, eat the fallen apples and the sprouts, and add very materially to the fertility as well.

Orchards are continuously over-run with insects, which are multiplying on every hand, and are more destructive than ever. Among them are the caterpillar, codling moth, maggot, army worm, borer, etc. We have on our hands a very persistent fight. By using the spraying pump with insecticides and fungicides, we can subdue many of

them, but there is one little fellow that bores through the fruit right and left, which we cannot reach by spraying. I allude to the apple maggot. The only way with this is to destroy the fallen apples as soon as they drop. How are we to do it? If we pick them up, that is expensive, and pigs are too sleepy. Here the apple grower has no better assistants than sheep. How to use the sheep to the best advantage is what we want to know. There is no use of putting twenty-five sheep into a ten acre orchard, expecting them to eat all the weeds, all the sprouts and all the fallen apples. They could not do it if they would. Put in not less than one hundred sheep. Put in at least twice as many as the lot will pasture, and then coax them to work for you. Sheep require a large variety of food, and if you want the sheep to eat the grass and fallen apples, etc., all of which are very carbonaceous, you must hire them to do it by giving such food as will balance the ration; feed them plenty of nitrogenous food and they will work for you faithfully and keep your orchard in the best possible condition.

What shall we feed them? It costs $3 a week to hire pasture for one hundred sheep. Put one hundred sheep in a ten acre orchard, and with the $3 buy two hundred and fifty pounds of bran, and in addition, one hundred pounds of new process linseed meal. Feed the one hundred sheep fifty pounds of this each day, which is about one hundred quarts—a very liberal feed for them, and they will thrive wonderfully and do all I have said.

By this means I accomplish these three objects. Those sheep are the best insecticides I ever had as against the codling moth and the apple maggot. They eat every sprout, every weed and every fallen apple, and eat the grass down like a road-side, and do all that at a price less than that at which I could hire pasture for them, and they add greatly to its fertility. Let us see what I am doing in the way of fertilizing. Two hundred and fifty pounds of bran, according to the experiment stations, contain of nitrogen, potash and phosphoric acid, about $1.63 worth; one hundred pounds of new process linseed meal contains of those three elements, a little over $1.00 worth, so that I am getting in my orchard, value in manure that is equivalent to $2.63. But you say, that costs money; but it would cost me $3.00 to get the sheep pastured, so I am here getting the equivalent keeping for 37 cents, or, I am getting this amount of fertility for nothing. Now if I should put just enough sheep in my orchard to keep it eaten down, and so that the orchard would support them and keep them thriving, do you not see that I would not add any fertility to the ground?

I want to enrich my ground and crowd in those sheep and feed them as I have said. It costs 37 cents a week for what the sheep do for me in the way of putting my orchard in the best bearing condition. Look at what I am doing for the season.

Two hundred and fifty pounds of bran per week for twenty weeks make 5,000 pounds, or two and a-half tons; one hundred pounds new process linseed meal for twenty weeks make one ton, and at the figures I have given you, that two and a-half tons of bran contains one hundred and eighteen pounds of nitrogen, one hundred and fifty pounds of phosphoric acid and eighty pounds of potash; the ton of new process linseed meal contains one hundred and eight pounds of nitrogen, thirty-seven pounds of phosphoric acid and thirty-seven pounds of potash, making an aggregate of two hundred and twenty-six pounds of nitrogen, one hundred and eighty-seven pounds phosphoric acid, and one hundred and sixteen pounds potash, worth in the market $54.57. If I counted the pasturage of the sheep the same as I would have to pay for it, $60.00, at the expense of $5.43, I get all that manure value in addition to the work done by the sheep.

I have said that one hundred barrels of apples contain thirteen pounds of nitrogen. Here we have nitrogen enough for thirty-seven hundred barrels; one hundred barrels contain seven pounds of phosphoric acid; here we have enough for twenty-eight hundred barrels. One hundred barrels contain about seventeen pounds of potash; here we have potash enough for six hundred barrels, and all this at the expense of only $5.43. And all this beyond having all the assistance from the sheep I have indicated.

I have an orchard that has not been plowed for seventeen years, which is remarkably healthy, and it makes an average annual growth of full fifteen inches on the limbs. The leaves are dark green and thick—in short, it is the picture of health, and I attribute its good appearance, health and productiveness to my manner of over-stocking it with sheep.

I am asked, how I keep the sheep from gnawing and injuring the trees? This is a pertinent question. Sheep should have plenty of water. They first learn to gnaw trees for the want of drink, but after the habit is once formed, like all bad habits, it sticks. But the trees can be protected by the use of what is called "chicken wire," simply wire cloth with meshes from one and a-half to two inches in diameter. Use that which is three or four feet wide. Cut pieces long enough to go very loosely about the trees, twisting the ends of the wire together. Where this is applied the sheep will not even rub against the trees. We want full crops of apples. We want good apples, free from worms and scab, and in order to get these we *must* restore the fertility of which we have robbed our orchards. To do all this we can have no more efficient assistants than the sheep.

There is no danger of getting our orchards too rich. In addition to the methods for enriching them which I have indicated, we should aim to make all the manure in winter which we can, which should be applied at least every second year. Here, again, sheep will be found our most available assistants. By the proper selection of stock, proper quarters and by feeding proper food—those rich in plant elements—you cannot fail in making large quantities of manure, and that of the very best kind for our orchards.

So I close by saying long live the sheep. May their numbers in the apple growers' hands steadily increase.

MERCURIC CHLORIDE, AS AN INSECTICIDE AND FUNGICIDE.

By Frank T. Shutt, M.A.

Some few months ago the Editor of the *Canadian Horticulturist* forwarded to the Central Experimental Farm, Ottawa, a letter from one of his correspondents who asked of what value this chemical was as an insecticide and fungicide? We had had no experience with it, nor could any literature on the subject be found, with a view, therefore, of obtaining an answer to the question a series of experiments were inaugurated, the results of which are here given. These experiments have necessarily been of a preliminary character, but they have given some interesting results, and serve to indicate the direction of future work. One of the essental characteristics of a successful fungicide or insecticide is that it shall not be injurious to the foliage to which it is applied. The first step, therefore, was to investigate the effect of solutions of corrosive sublimate of different strengths on the foliage of certain plants and trees.

Mercuric Chloride is a white crystalline salt, soluble in about fourteen, times its weight of cold water. In its physiological action it is irritant, corrosive and highly poisonous. These properties would lead us to suppose that solutions approaching saturation would be highly injurious to foliage as well as destructive to insect life. It is an antiseptic of great value and its well known power in preserving animal tissues from the growth of moulds and bacteria would suggest it as a useful agent in destroying or preventing the development of parasitic fungi.

Solutions of two strengths were made and experimented with, A. 1 part of corrosive sublimate to 1000 parts of water by weight (2½ drm. to 1 gall.); B. 1 part of corrosive sublimate to 1000 parts of water by weight (1¼ drm. to 1 gall.

First Series of Experiments.

The following plants were selected: Hydrangea, Abutilon, Coleus, Geranium and Fuchsia, which at the time of experiment, were in the green-house. An atomizer which made the solution as fine as mist was employed for the spraying.

Hydrangea sprayed with solution A. Shortly after drying it was noticed that both leaves and flowers were becoming brown. The sprayed parts soon shrivelled and died, presenting in the course of a few days a burnt and scorched appearance. Solution B was then tried, on drying from the first application no injury was apparent, the plant

was then sprayed a second time, the foliage in the interim not having been watered. Patches of small brown spots now appeared on the leaves a short time after drying, the leaf of the sprayed was not, however, visibly affected.

Abutilon, sprayed with solution A. Small brown patches appeared after second spraying, but the vitality of the leaves appeared to be unimpaired. With solution B. no injury could be detected until about one week after second spraying (ten days after first application,) when a few brown film-like spots appeared, otherwise the leaves to be healthy and vigorous.

Coleus, sprayed with solution A. The leaves soon showed signs of scorching the injury extending to the destruction of all the cell substance. Death of the treated leaves and their falling off soon followed With solution B, the leaf was injured by the first application though not seriously. After the second spraying at an interval of three days the injurious effect of the corrosive sublimate was more apparent and finally the sprayed parts died.

Geranium, with solution A. Almost immediately on drying, the foliage became brown as if the leaves had been badly scorched. The leaf shrivelled, died and dropped in the course of a week. With solution B very little injury appeared at first, but after the second application the injury was most marked. The sprayed foliage eventually died and dropped.

Fuchsia, Sprayed with solution A. Very slight injury if any could be detected, even after several sprayings. With solution B, the leaves appeared perfectly healthy and normal after repeated applications.

Second Series of Experiments.

The effect of the trial solutions was then ascertained on the foliage of certain fruit trees as follows, apple, pear, plum and cherry. These were all young trees from 4 to 6 feet high and were in nursery rows. They were all sprayed twice with both solutions (A and B,) an interval of three days intervening. No injury to the foliage resulted in any case.

Third Series of Experiments—as an insecticide.

A clover plant infested with aphides was sprayed with solution A. The aphides dropped to the ground, in a short time, however, it was noticed that most of them were re-ascending, apparently none the worse for the spraying. Unfortunately the plant at this juncture met with an accident that terminated the experiment. As the thin film of poison would lie on the surface of the leaves we should expect it to be most efficacious in the case of those insects that eat away the substance of the leaf. To those like the plant lice just cited, that pierce the epidermis and suck the juice it could only act as irritant (perhaps to the extent of destroying) at the time of spraying. A colony of mealy bugs was sprayed several times but only succumbed after prolonged treatment No experiments have as yet been made to test the efficacy of corrosive sublimate directly as a fungicide, a suitable opportunity not having offered itself.

Conclusions. With the limited data at our command it is not advisable to speak too definitely as to the future usefulness of this compound as an insecticide and fungicide. Some inferences however, may, I think, safely be drawn. The foliage of different plants evidently varies widely in its ability to withstand the corrosive action of this compound A solution which is very injurious to one plant is often quite harmless to another. The greenhouse plants with one exception, were all affected by solution B (though some not disastrously so,) while the fruit-tree foliage was uninjured. From the properties of this salt (corrosive sublimate) and the result of work here given, I am not hopeful for its success as an insecticide. I do not think it can safely be applied in solutions sufficiently strong to act in this role. I am more sanguine for its usefulness as a fungicide, and future experiments may show that solutions even more dilute than B. may be used to advantage in checking or destroying fungus life.

NEW RASPBERRIES.

By John Craig, Central Experimental Farm, Ottawa.

In introducing this subject Mr. Craig said that "Few of the many new varieties placed on the market within the last five years possess merit over those already in cultivation. Out of a large number tested at the Experimental Farm and which I have observed growing elsewhere, I will mention a few, some of which are decidedly promising, and others which need further trial before a correct estimate of their value can be arrived at.

Thompson's Early. Ripe the second week in June; medium size, round, bright red, fairly firm, attractive. Its earliness seems to be its principal good point. Although hardy it has not been productive.

Columbia. I have not fruited this at Ottawa, and speak of it as seen growing at the N. Y. Experiment Station at Geneva, where I was very much impressed with the vigor of the plant, quality and size of the fruit. It has also received favorable commendation at the hands of the able editor of the *Rural New Yorker.* It is believed to be a cross between the Cuthbert and Gregg, and is intermediate in many characteristics, the fruit being purple and striking root from the tips.* It therefore is of the Shaffer type,

* Many crosses of this kind have fruited at the Experimental Farm. In nearly every instance the fruit has been purple in color. J. C.

but the berry is firmer and of better quality, and I am told is a great bearer. This variety originated with Mr. J. T. Thompson, of Oneida, N. Y., who controls the stock at present I believe.

Heebner. Is a large red berry of the Clark and Hornet type. In quality it is A1, but not firm enough for distant shipment. It has been on trial at Ottawa for the past four years, having been introduced by Mr. Hilborn, (now of Leamington), in 1888. The cane is not quite as hardy as Cuthbert, but the fine quality of the fruit should give it a place in amateur collections: It is fairly productive.

Herstine. Is another variety which can be recommended for home culture, but is not sufficiently vigorous and productive for market. It is also deficient in pollen and incomplete fertilization is occasionally noticed.

Hansell. As an early market variety I am inclined to think that this variety has been underrated. It ripens with or before the earliest, and continues giving fair pickings throughout the raspberry season. The berry is of medium size, firm and attractive, bright color and of fair quality. The past two years it has yielded better than Turner, which it equals in hardiness. It needs high culture.

Recommended for the Market.

Red { Hansell.—Very early.
Marlboro'.—Hardy, attractive, poor quality.
Cuthbert.—Fairly hardy, productive, firm, late, good quality.

Purple.—Shaffer. Specially valuable for canning.

Black Caps { Mammoth Cluster.—Early.
Hilborn.—Medium early, productive.
Gregg.—Late.

Yellow.—Golden Queen. Good quality.

Recommended for Home Use.

Red { Turner.—Early, hardy, good quality.
Heebner.—Medium, needs protection, fine quality.
Hornet.—Late, " " "
Cuthbert.—Good quality, fairly productive.

Purple : Columbia.—New, promising.

Black Cap { Doolittle.
Hilborn.
Gregg.

Yellow : Brinckles Orange, or Golden Queen. Must be protected in winter, succeeds in the north.

NOTES RESPECTING NEW VARIETIES OF FRUIT.

By Thos. Beall, Lindsay, Ont.

For many years past the business of introducing new fruits or varieties of fruits has been pursued by many persons and by different methods. Every kind of fruit has been the subject of investigation, and great results have followed.

Grapes, perhaps, stand first in order. Fifty years ago the Isabella, the Clinton, and two or three others, now less known, were about all that were then grown in this Province. Now, a hundred or more varieties are successfully grown in Central Ontario, most of which are better in quality and many of them ripens their fruit from twenty to forty days earlier in the season.

The varieties of strawberries have increased to a wonderful extent within the past ten or fifteen years. Almost any number of varieties may now be obtained and all of good quality.

With currants, the recent introductions, are few in number, most of which are larger in size, and therefore, are better market varieties, although the quality is generally inferior.

There are many varieties of raspberries of recent introduction, most of which are wanting in one or more of the essential points necessary to establish a lasting reputation, viz., color, size, quality, and hardiness.

The number of pears introduced within the past few years is large, but it is doubtful if a half-dozen of the newer varieties can be named having the necessary qualities which will procure for them favorable recognition ten or fifteen years hence.

Apples—our staple fruit—extraordinary efforts have been made during the last few years to improve this kind of fruit, but with less encouraging results than with other kinds. Perhaps if we enquire carefully into the cause of this comparative failure to improve winter apples some useful lessons may be gained.

New varieties are the results of cross-breeding and this is accomplished in two ways, "naturally" and "artificially." It is said to be "natural" when done without human assistance, and "artificial" when the operation is controlled by human skill.

Russia and other parts of Northern Europe seem to present the best field for those who hope to find better winter apples, and apples better suited to this climate from the results of natural cross-fertilization. Yet, notwithstanding the enormous expenditure of time and money in this pursuit during the last twenty or thirty years, but little has been added to our stock of winter varieties. Nothing, in fact, superior or even equal to those we already have has been found.

The comparatively few workers in the field of artificial cross-breeding—persons who are working only for the furtherance of science and for the general welfare of our people (and without governmental aid) are meeting with much greater promise of success. Indeed, it is quite probable the time will soon arrive when artificial impregnation will be resorted to altogether for the improvement of most of our fruits. The artificial process, when conducted with intelligence and with a fair knowledge of the philological peculiarities of vegetable life has many advantages over the natural process, inasmuch as it enables us to bring to the aid of nature all the advantages of modern science.

If we look for a moment at the life history of the winter apples in the list recommended by the Fruit Growers' Association, for profit in the several Districts of Ontario, it seems evident that improvement in varieties of apples (and all other fruits) can be accomplished by artificial cross-breeding with almost absolute certainty; while searching for chance seedlings, superior in quality to our own winter fruit, in Russia or any other Northern European country is a very uncertain and exceedingly expensive business.

The list of winter apples referred to contains only fifteen varieties. Two of these, La Rue and Cranberry Pippin, are natives of the State of New York; one—Pewaukee, of Wisconsin; three—Golden Russet, Blenheim and Ribston, of England; one—Ben Davis, of Kentucky; two—Tolman Sweet and R. I. Greening, of Rhode Island; one—Edgar's Red Streak, of Illinois; one—Red Canada, of one of the Eastern States; one—Scott's Winter—(?); two—Baldwin and Hubbardstone's Nonsuch, of Massachusetts; one—Ontario, of this Province. All of these, I believe with one exception, the "Ontario," were chance seedlings, and were discovered in the localities named. Not one of them is from Russia or any other country further north than England.

The "Ontario" was produced by the late Chas. Arnold, of Paris, Ont., and was the result of artificial fertilization while endeavoring to establish his theory, "that any desired quality can be obtained in any kind of fruit by judicious cross-breeding.

To test this theory, Mr. Arnold undertook to produce a variety of apple, combining the color, the quality and the fruitfulness of the Northern Spy (a chance seedling found in New York State) with the early bearing peculiarity of the Wagener (another York chance seedling.) The result—the production of the "Ontario"—was one of the greatest

triumphs of modern horticultural research, and establishes the fact beyond doubt that the true road to success in the improvement of our fruits is in artificial cross-breeding, aided by a thorough knowledge of the principles of vegetable philology.

It may, therefore, be seen that it is unwise to search for varieties of winter apples superior to those we have, in the Northern countries of Europe. But, summer apples of better quality may be looked for with greater prospect of success in the North than in the South. Our three best summer apples—varieties that are successfully grown in every district in Ontario—Duchess of Oldenburgh, Yellow Transparent and Red Astrachan are each of northern origin. The first two from Russia and the last from Sweden, from whence it was imported into England in 1816.

All things seem to point to the fact that real improvement in the quality and in the commercial value of our fruit, must be accomplished by artificial hybridization and cross-breeding. The few persons who have been engaged in this pursuit have, in most cases, given the most valuable portion of their life-time to this most attractive branch of horticultural science almost without a hope of pecuniary reward. Simply a labor of love.

Would it not, therefore, be well to take some steps for placing scientific cross-fertilization more prominently before our people by sowing the necessity for its pursuit? And at the same time to devise means whereby some substantial remuneration could be obtained by or for those who succeed in producing new varieties of acknowledged superior excellence?

Successful results in cross-breeding are rare, because the conditions of success are not sufficiently known, and also because of the length of time often required for development. Sometimes, indeed, an average lifetime is not enough to test the results of operation's performed in early life. Mr. Arnold lived long enough to know that the "Ontario" apple would eventually take first place in public estimation, but not long enough to see it reach that point. The late Mr. P. C. Dempsey gave the greater portion of his valuable lifetime to this subject, but, unfortunately for the interests of pomology he, too, has been cut off in the midst of his work and before the public could have an opportunity of pronouncing on the vale of his very extensive operations in hybridization and cross-breeding. A few persons only know anything of the extent of his operations or who can have any conception of the vast gain to our horticultural wealth which will almost certainly result from his life work.

Under existing circumstances, therefore, we can scarcely hope for that development of the science of cross-breeding which its importance to pomology demands. But if students in this branch of science were assured that extraordinary success would meet with corresponding reward, men in early life having the necessary educational training would engage in this pursuit, and pomology and horticulture would soon be elevated to that position in the scale of natural science to which its importance deserves.

The present system is marked neither by justice to the operators or by common honesty on the part of the people. The work of a man's lifetime is now appropriated by the commonwealth greatly to its advantage, while the producer of this source of wealth is treated with utter neglect. Any person producing a new machine, instrument or process, although it may not have cost one hour's thought, can secure a fair share of the profit arising from its use for his own benefit, while the producer of a new variety of fruit which may greatly enrich a nation cannot legally secure for himself or his family and financial benefit whatever.

Many costly tributes have been presented, or pensions given by the State as tokens of gratitude in recognition of meritorious deeds much less deserving of public gratitude than those rendered by Arnold or Dempsey.

If a respectable gratuity were now presented to the family of the late Mr. Arnold for his successful efforts in hybridizing and cross-breeding and provision made for recognition of similar service to others when the super-excellence of their products may be established beyond doubt, it would, in my opinion, be a satisfactory answer to the question so often asked, "How may our young men be induced to take a greater interest in fruit-growing for profit?"

MY GARDEN.

By Rev. W. H. Porter, M.A., Brantford.

It is small; but it is wonderful what a little spot will produce by good cultivation. Indeed, the very idea of a garden is, ordinary land under special cultivation. A young friend in Nova Scotia wrote me once, that he had just got where he experienced a joy and luxury in farming, by having a few acres so well cultivated as to produce more than large farms around him.

Rev. Dr. Goodspeed's garden in Toronto, is a wonderful illustration of what, by proper cultivation, a little plot can be made to do.

And so it is with some denominations of Christians, such as the Moravians, who remind one of the description of Joseph, a vine hanging over the wall. A small denomination, but sending out more missionaries into the world than any other.

So with some churches, like the little Plattsville Baptist Church, that does more a great deal for the support and spread of the gospel than many large, and even wealthy churches.

So, too, with institutions of learning. Some comparatively small and obscure ones, like Acadia College in Nova Scotia send out more strongly developed men intellectually and morally than many large and well endowed universities.

And so, too, with individuals. As the old lady said of her garden, "Yes, its small, but it's deep—even to the heart of the earth. And it's high, as the very zenith of heaven."

And thus some lives, hemmed in to narrow spheres, it may be, rooting deep, grow high, and like Bunyan in Bedford jail, John, on the Isle of Patmos, or, the mothers of Augustine, Wesley and Spurgeon, send out their boughs and fruits to earth's and time's utmost limits. Such may be the case even with poor soil to begin with.

A merchant in St. John, N.B., took up a piece of rocky wooded swamp, and by underdraining, manuring and cultivating it well, he not only out-did, but astounded all the surrounding farmers. How true has this been in the intellectual, moral and spiritual world. By proper cultivation, some of the lowest castes in India are becoming superior to the high castes, and cannibal races are ranking with civilized nations.

Take an individual case, one of the most hopeless, such as Laura Bridgman. Blind, deaf and dumb, shut out seemingly from any possible enlightenment. And yet by persistent and skilful effort and cultivation, she became a very intelligent and useful woman.

The garden is my garden, and being mine gives me a great deal more interest in it, interest in properly cultivating and fencing it. I find that leaving my garden unprotected may cause more ruin in one hour, than could be repaired in a whole season. "Take us the foxes, the little foxes, that spoil the vines, for our vines are tender, and have tender grapes." Often the more small and unnoticeable the enemy to the garden, the more dangerous. Such as the insect gnawing at the root or heart of the plant, unnoticed, or those that assume the very color or form of the plant, in order to feed upon it undetected. Plausible errors and virtuous sins, so to speak, are often the most fatal destroyers.

I notice too, that however rich the soil in my garden, the flowers, fruits and vegetables have to be sown, or planted, and cultivated, but the weeds need no such labor or attention. They grow unsolicited and uncared for, and even when eradicated, again and again, will reappear, of the self-same character. The cultivation of good and the opposition to evil, seem to be necessarily constant and continuous.

One thing more, among many that I shall not take time further to notice, in the cultivation of my garden, is, that the time to eradicate the weeds by pulling them out by the roots, is, after a good moistening, mellowing shower. Evils that seem ineradicable, or only to be broken off, immediately to spring up again, like tobacco using, or drinking, or other unconquerable habits, are often easily overcome, when the heart has been softened by God's grace and Spirit. After all, God and man are the two great factors in gardening.

THE PROBLEM OF OUR TIME—ITS DISCOVERY AND ITS SOLUTION.

By B. Gott, Arkona.

Young men who attempt to enter upon life's arduous duties without any well set carefully marked and thoroughly thought-out plans, or aims or objects of their life are scarcely ever a pronounced success. In order to have the satisfaction, the solidity and the growth in their work that is so desirable and that will help to make them good and efficient workers in their calling it is necessary that their course should be well and definitely marked out for them or by them before hand, and then that they aim steadily, constantly and persistently towards that high and honorable purpose. In short, they must have a well devised plan in their life, and then hoard all their varied energies and efforts to the working out that plan to the very end. In order to effect this kind of brilliant success, it is further necessary that their efforts should be properly concentrated upon and in the direction of the one idea, and the one great purpose that they have set up as a mark to aim at. This quality will give them steadiness of effort and solidity of purpose and will help to produce in them that one great want of the present time, viz., "accomplished specialists."

Negatively we notice that not so much a lack of energy is the great fault of our time and people as is a shameful and deplorable wasting of energy, and that to a fearful extent. I need not attempt to particularize, for you know that there is amongst our young men especially a most lamentable amount of hap-hazard, loose, disconnected or evaporated effort that never tells anything on the pages of history or in helping on the individual resources. It is simply life that is the most precious of all bestowments frittered away and to all good purposes lost for ever. No object, no aim, no high and honorable ambition in life; nothing definite or substantial attained! What a contemplation! And yet it is most certainly true in our time of many a young man and many an older one too. Especially is this contemplation sad in view of the amount of work to be done on every side, the number of open avenues temptingly inviting us in, and the number of callings and businesses beckoning us to follow and succeed. Amongst the many great problems of life and the numerous questions that so deeply agitate men we think we have one here in the peaceful, lovely fields of horticulture, one that offers the most brilliant prospects, the sweetest and most alluring labors and the most tempting substantial rewards to satisfy the desires, the purpose and the aims of any young life that we know of in our time. To discover this problem and to effectually solve it is an object worthy of the most exalted and the most cultivated ideal.

Practically we will now first attempt the statement of the problem and, lastly, as briefly as possible, set ourselves to the solving it. It is: *To produce the greatest possible amount of the best and highest excellence of growth from the least possible surface of soil is the greatest problem of our time.* The surest way to discover this question is by hard, persistent study, aided and assisted by life's most potent forces. It is in this line of work of ours that the discovery must be made and cannot be attained by mere listless squandering of our time or abilities or the criminally wasting the precious opportunities that more or less come to us all. Its solution consists in the realization to the fullest possible extent of this grand idea in connection with our business as "Fruit-Growers" in this country. To help to do this it will be necessary to proceed to some calculations bearing upon the question built partly upon actually experienced results. To help further to do this in something like a definite form it will be necessary to take a plot of ground of not one hundred acres or of ten acres, but of only five acres, as a foundation upon which to work, and one will see what can or could be done with this fertile plot of five acres o Canadian soil. Could the much quoted author of "*Ten acres enough*" be now induced to revisit our common earth how greatly would he find this whole programme changed as he would be led to exclaim, "*Truly, this is another era.*" In laying out our plot which must be supposed to be well and properly fenced by post and wire, but not by live hedges or live trees on the inside, to draw anything from the supporting forces of the soil of the plot itself and the whole must be in the best of "tilth" and thoroughly in order.

In the first place then we will advise one acre, viz., 43,560 square feet, to be planted to strawberries, four feet by one, or 10,890 plants in the spring of the young year, and by the next fall the growth will be most surprising to all and fit on the next season to bear a full crop of the most beautiful and delicious of fruits. About this space after the most slipshod and careless method of management has produced to our knowledge the past season 2,000 quarts at an average of 5 cents, or $100, and by little effort in good culture and proper fertilization it might very easily be doubled or even better and then not thought to be noticeably large or surprising.

It must, however, at the outset be presumed that good and even high fertilization is applied to this whole system of this sort of *advanced Horticulture* in order to realize the results here indicated, otherwise the whole matter in the highest and best sense will be little less than failure. With high culture and high scientific fertilization what do we know about the possible products of our almost inexhaustible Canadian soils? As yet scarcely anything whatever. The whole secret being as it were locked up and never has been inspected by rude and vulgar ken. Only bring the profound and accurate knowledge of our modern scientists to bear upon this question of soil production and properly apply the results of their mature investigations in thoughtful attentive practice, and who can tell what mysteries may yet be revealed along this line? It may be things to astonish us and our children and almost upset our ordinary credence. Is it practical? Can it be done? you ask. We fully believe it is, and can be done by any ordinary workman fit for the calling and who is intent on the purpose. Perhaps some of you have already seen "Henderson's Market Gardening" and other works of his of great value and that give in full some of the modes, processes and results of tillage in the market gardens in and around the city of New York and other large cities of the neighboring Union? These popular books of this author have done much to open our eyes to the great problems of soil, production and its permanent results. Let something of this sort be applied to one acre of our strawberries of almost any variety and who amongst us can now say definitely what the product would amount to? Not that we would here and now advocate the popular fallacy of unlimited product or that of over-fertilization; not at all. We believe fully that there is a limit to all forms of production in all climes, but we also believe that as yet very few of us properly know what it is. With us and in our experiences the whole matter is yet in its infancy and absolutely undeveloped to the eyes of men. Could we only become acquainted with the modes of culture and systems adopted in older and more thickly populated lands of the "Eastern World," as for instance China and Japan it would most likely do much in helping us forward in the realization of this very important practical idea. It may be so even amongst us shortly, but hardly in our day.

But to our plot again. We will further plant one acre of pears, 16 by 16 ft., or 170 trees and the whole filled in with gooseberries and currants in about equal quantities that is about half an acre of each fruit. These will be planted 4 by 3 ft. or 3,630 plants, as the pears will not for some years take all the ground to themselves, and the whole kept well pruned and cultivated. Next we would plant one acre of peaches and plums in equal quantities, 10 by 15 ft., or say 300 trees, where these fruits are sure to do well; and the whole of this space planted again with raspberries, 4 by 3 ft.=3,630 plants. The products of these two acres cannot now be properly approached, but with the culture and fertilization we have assumed they would doubtless give a good account on the day of reckoning up the profits. We will next have an acre of apples, 30 by 30 ft., say 50 trees, and the whole of this acre planted with blackberries, 4 by 3 ft., or 3,030 plants. Perhaps some of you here may think that this is rather close planting to be profitable and so object? But the great idea is not to gorge and crowd the land by over thick planting but to attain the largest and best production from a given space. It is the largest possible quantity of the most perfect samples of their kind that we must rely upon for our final results, but at the same time it must be constantly borne in mind that this cannot be done unless the plants are not only on the ground but properly supported and developed. The question of how many plants a piece of ground will properly carry must be decided by actual trial. This whole consideration is the great problem of the age, and must be carefully and accurately worked out on these lines, and we believe it can and

will be done after this design and according to this plan. But on our remaining acre as the most promising of all fruits we would most decidedly wish to be planted with grape vines, 12 by 8 ft., or say 460 plants, and these after a few years good growth and in full bearing will at a very moderate calculation yield 20 pounds of fruit per plant, or 9,200 pounds. But 9,200 pounds of grapes at 2½c. per pound are worth $230. But our plot of one acre contains 43,560 square ft., the square root of which is 208⅘ ft. and this measured by 12 ft. the distance apart of the trellises gives 17 trellises. But between these 17 trellises may be planted 17 rows of Red Currants, 4 ft. apart=900 currant bushes. These at an average of 5 quarts per bush, mean 4,500 quarts at 3c. each=$135. But $135 plus $230 for grapes makes $365 as the whole amount of product of one acre of our rich and fertile soil.

Now I will not attempt to sum up the entire product of every acre thus of our five acre plot. I am sure you will gladly and carefully work this out, every man for yourselves in your own individual experiences, but I am persuaded and can testify if required that here is a line of work that can be made adequate to occupy the attention and employ the best energy of the men of our age both young and old. Aside from this there is scarcely any problem of our time that is so important in its practical bearing upon this age and upon the ages yet to come for all time.

May the appreciated and timely labors of this Association of Canadian Fruit Growers as it has in the past, yet much more in the near future, more sensibly and materially help to work out a problem so very influential and so deeply concerning the whole population of this young and growing country and through them the whole race of sensitive living men.

FERTILIZERS FOR THE ORCHARD AND GARDEN.

By T. G. Raynor, Rosehall.

This is a very important subject to both the orchardist and gardener, for it has to do with the home end of his business. The wise application of fertilizers may often lower the cost of production to an extent as will greatly increase the profits, or at least make a margin on some products which have not paid the producer very well in the past. We all want to make a profit on what we grow, and the larger it is the more gratifying.

From a practical standpoint many of you know much more about this subject than I do. It is not then with a view of telling you something new that I have prepared this paper, but my object is more to excite discussion which may be of profit to all.

In discussing fertilizers every one should form an acquaintance with three simple elements, called in agricultural science, nitrogen, phosphoric acid, and potash, which are found in all fertile soils.

Of these three elements nitrogen is most expensive and most likely to escape from our grasp, both in its management and application. It occurs in all vegetable and animal composition, and in many of the salts occurring in nature, as nitrate of soda, etc. Phosphoric acid is found to a considerable extent in the bones of animals and as a mineral in the form of apatite. Potash, the least expensive of the three, is found largely in the composition of wood ashes.

The productiveness of our soils depends upon the quantity of these three elements present in them. If any one of the three be absent or not present in sufficient quantities for the development of any particular crop, by so much is that soil said to be unproductive.

There are two things to guide us in the use of fertilizers, (1) the nature and conditions of the soil and (2) the kind of crop grown. Soils vary much in composition, from light leachy ones to very heavy ones. Thus it is evident that we should understand their powers for retaining these three elements, to some extent at least, in applying

fertilizers. A knowledge also of the composition of the crop grown is indispensable with regard to its behaviour towards them in order that there may be no great waste in the application of the fertilizer. For example, the potato takes from the soil a considerable quantity, then by applying a potash fertilizer we may greatly increase the yield of potatoes. Now if we had applied large quantities of phosphoric acid we might not realize any increase in the quantity of potatoes produced and we would naturally conclude that we had made a mistake as well as sustained a loss.

There are three classes of fertilizers at our disposal. I refer to (1) green manures, (2) general manures, and (3) special fertilizers. For light and heavy soils green manures are very valuable, as they increase the power of a light soil to hold manurial ingredients, which might otherwise leach away, and they greatly improve the texture of a heavy soil, making it open and friable. Green manures are useful in orchards, to keep down weeds, to keep the soil, if heavy, open, and at the same time add to its fertility. They may be pastured and thus become a double source of profit. Any large leafed plant which will grow quickly and draws most of its nutriment from the atmosphere or subsoil, as red clover, buckwheat, etc., are suitable for green manuring.

By general manures, I mean those which contain the three elements referred to above. They contain other elements of plant food as well. Farmyard manure and compost come under this head. If we could produce, or even buy enough of this class of manure, we would have no difficulty in making and keeping our soils very productive.

Most of us realize the value of a compost heap, but how few, comparatively speaking, make them. By throwing in a heap all the vegetable and animal waste products, occurring around our homes, together with some farmyard manure, which, when well mixed makes for us a cheap and rich manure, especially for the garden. In gathering up the refuse vegetable matter, etc., we remove a suitable hiding place for many injurious insects as well as destroy many which have already taken refuge there.

The third class of manures, of which we spoke, are called special or artificial fertilizers, that is, they contain some one or two of the three elements to which I referred. There are very many of this class of fertilizers manufactured and used at the present time.

Where we require more fertilizing material than we have at hand, there the special fertilizer comes readily in play. They are invaluable to the market gardener. In some cases, however, they should be used with caution, if we are to realize a profit from their use. By experimenting with our soil we may learn of which of the three elements it has the most need, and this will guide us in the kind of fertilizer to apply. A knowledge of what the crop to be grown requires will also be a help. Just here a word of caution may be necessary for some. Certain classes of fertilizers should be purchased subject to a chemical analysis by a competent and disinterested person. So many have have been defrauded in the past that this step is almost necessary. On the other hand it may also prevent a fertilizer from being unjustly condemned.

In a paper of this kind it would be folly to give the composition and value of the many special fertilizers now offered for sale. I can only suggest general principles and leave the particulars to be brought out in the discussion.

Generally speaking I would apply nitrogenous manures or fertilizers containing nitrogen, as sulphate of ammonia, nitrate of soda, or guano, to crops or trees where vigorous growth is the object; phosphoric acid in the form of superphosphates, bone ash, bone meal, or apatite, etc., where fruit or fully developed seed is required; and potash fertilizers, as wood ashes, or kainit, are very useful in growing crops which store up considerable starch in their growth. It is needless to remind the fruit grower these days of the value of wood ashes as a fertilizer and insecticide for the orchard and garden. It pays to use all the wood ashes made at our own homes and frequently to buy from our neighbors, who offer them for sale. If we expect to grow paying crops of fruit and vegetables we must supply the elements of growth and development to those soils which are being repeatedly cropped.

REPORT OF THE FRUIT CROP FOR 1892—THE COUNTY OF LAMBTON.

By B. Gott, Arkona.

Believing that a report of our fruit crop may be both profitable and interesting to others, I attempt, as briefly as possible, to offer ours for 1892. In the first place I may say that we have had a very peculiar season in three or four particulars. (1) Contrary to what we expect usually to take place, we had this year little or no frosts late in May or again early in September, and the consequence is we have had a far longer season than usual. (2) The great extremes in the rainfalls, it being very heavy in June and July and scarcely any for many weeks after. (3) The early and very severe attack of fungus upon the leaves and fruits of our trees and other damaging influences causing us severe injury and great loss. In consequence of this attack our pears and apples in many cases were almost a total ruin, the damage falling on pears the heaviest upon Flemish Beauty ; and upon apples, the heaviest upon Early Harvest, Snow and Northern Spy. (4) It has been noted for one of the most beautiful, charming and enjoyable Octobers in our remembrance. We are thankful for all favors.

Strawberries and raspberries of almost all sorts were this year the finest and most abundant ever seen in this county. They were the most admirable in quality and beautiful in form and color, and to the grower or buyer all that could be desired. The sorts of the first fruit mostly used here this season were Crescent Seedling, Wilson, Captain Jack, Daniel Boone, Manchester, Bubach No. 5, Jessie, Sharpless, James Vick and Eureka. All were good, but the three or four last named were extra fine and beautiful.

Of raspberries, Cuthbert is the one sort having the most good qualities and consequently most to be depended upon for a good satisfactory and splendid crop. Besides which, however, we use Turner, Highland Hardy, Shaffer, Marlboro, Golden Queen, Hilborn, Souhegan and Gregg and some others not so noted.

Never was any sable queen decked out in her most beautiful gems so gorgeous as were our blackberry bushes this season, for whole acres of plantation the sight was the most astonishing of the kind, of anything ever seen here. The fruit in the greatest abundance was without a fault, and grandly filled an empty niche just at the proper time. The one sort standing high above all others here for market planting is the Snyder, which has more good qualities than any other so far tried.

Currants of all colors were good and very plentiful, but it is surprising what a quantity of these fruits the markets can be induced to take and use. For some purposes nothing can be substituted, and therefore we must seek by the best means to perfect our currants for these purposes. The sorts used are for Red : Raby Castle, Red Dutch, Cherry and Fay's. For White : White Grape and White Dutch ; and for Black : Black English and Black Naples. Nothing new appears in these lines to merit special mention.

Mulberries and Dewberries, although much lauded and much written about, are as yet amongst the doubtful investments. Neither Russian mulberries or the most approved dewberries have ever returned in this county the interest of the outlay.

With gooseberries it is quite different, and the crop this year was very large and varied. The quality was fine, and the market good. The sorts mostly used are Houghton, American Seedling and Downing, with some Smith's Improved. But if we we could grow the Pearl, as I saw it growing this summer in the eastern counties, it would at once be generally adopted.

Apricots are another doubtful investment. The Russian sorts have been extensively planted here and for some time, but I have yet to hear of the production of a single sample of their much and eagerly desired fruit. If we could only get them what would we care about the loss of the peach or plum either. But it appears it is not at the present at any rate so to be. Climatic conditions utterly and totally forbid it and who can strive against fate ? Not one.

The old Kentish Red cherry, so old and familiarly used for so many years, is now

almost extinct in the county. How? By the fearful spread and ravages of "black-knot" in every part of this whole country.

English, Russian and other sorts have been tried, but to no satisfaction or practical results. This is to be much regretted.

The plum crop in the county wherever the trees were properly cared for and healthy was good, and the fruit was very fine indeed, but this condition was very scarce and hard to be found. But we have not yet given up all hope in plum raising, and many of our people are seen now planting out largely wherever good and favorable places are found and can be procured, and some are planting the Western sorts. The ever popular Lombard is now mostly relied upon with the Green Gages, but besides these not many others.

Not many quinces are grown, but the sample this season was extra fine indeed. As, however, people in general do not know their proper place in our economies not many are called for. The Orange quince is about the only sort.

No improved nuts are attempted. Our reliance being solely upon the products of our forests, and this year not many of these.

Pears were a most disappointing and abundant crop as not many were expected early in the season. But on account of the early blight many of them, especially Flemish Beauty and Seckel, were malformed and disfigured by an unnaturally russetty skin that they were scarcely recognizable and almost worthless. Some sorts on the contrary were very fair and even good, as mostly Clapp's Favorite and Bartlett. Other sorts used are Onondaga, Louise, Howell and Angouleme and some others.

The apple crop was small and sample ill-formed. It was one of the most despicable apple crops ever had in the county, and of the least value. The cause of this was the fungus blight falling early. The sorts used include almost everything on the lists, but for real valuable continued satisfaction and results nothing has yet superseded the old standard sorts, viz, Baldwin, Rhode Island Greening, Northern Spy, Ben Davis, and King of Tompkins.

The grape is a fruit in which we are deeply interested. The crop this year was one of the finest and most beautiful ever seen in the county. The sample was fine, the berry and bunch large and good and the ripening perfect, while the quality was all that could be desired. This fruit is receiving increasing attention and is really very popular, and it returns well for all labor, time and skill bestowed upon it. Concord is popular everywhere and everybody knows it. The other sorts used are Hartford, Moore's Early, Worden, Pocklington, Niagara, Prentiss, Brighton, Delaware, Salem, Wilder, Agawam, Lady, Jessica, Champion, Herbert, Iona and others.

I would like to add a word in conclusion that will bear upon this whole question of successful fruit production in this county. I am becoming more and more thoroughly convinced that amid our climatic conditions and our soil adaptedness we must resort to practical artificial means for protection, and that protection must come to us as fruit growers in the form of fine spray containing a solution of some arsenic compound held and finely applied entirely over the mass of our fruit trees and bushes and even our vineyards as well. This is felt to be a very unfortunate conclusion that we deeply regret, but it is a result that is becoming more and more apparent, and to ensure safety and satisfaction is a necessity, as our climate is changing rapidly, more and more to the severe. Whatever troubles after generations may have in this matter we do not at present know, but we are sufficiently alive to our own troubles and we can think of nothing by which we can defend ourselves but something in this line.

LETTUCE GROWING UNDER GLASS.

It may be news to many that the conditions are so unlike in the east and west that the business of forcing vegetables in greenhouses, although quite profitable in the first named section, has not been found to pay in the latter.

The large cities of the east afford a better market than western states, and southern competition is more keenly felt in the latter. Near large eastern cities head lettuce is

grown exclusively, tomatoes and cucumbers are forced in midwinter, but to follow the same course here would be to court fai'ure. Head lettuce cannot be grown so cheaply as varieties that do not form heads, but there is no better demand in western cities for the former than for the latter. Tomatoes and cucumbers are difficult to force in midwinter, and the prices that may be obtained for them here at that season of the year, are not sufficient to pay the cost of production.

In spite of these drawbacks recent developments show that the business may be carried on profitably in the Western States.

The introduction of the Grand Rapids lettuce may be said to mark the commencement of new era in lettuce growing. It is less subject to disease and can be grown more cheaply than any of the heading sorts, which are looked upon as standards in the East, The difference between it and the varieties is so marked that by its cultivation the profits may be nearly or quite doubled. This alone is a great advance, but after three years experimenting with sub-irrigation the Ohio station has found that the lettuce crop may by this means be nearly doubled.

This places the lettuce grower in a much better position than before; in fact, lettuce forcing in greenhouses is now a profitable business, whereas it was in danger of being abandoned in many parts of the country.

This is a matter about which tariff reformers will not have much to say, as tariff has nothing to do with the matter. Over production in one section nearly destroyed a growing industry in another, but the discovery of a variety and the application of an old device in a new manner, has saved a business which is likely to become one of great importance.

There is no reason why vegetable culture under glass should not now become of equal importance with floriculture, and this means many thousands of dollars annually added to our productive resources.

Sub-irrigation was first used with lettuce in order to avoid watering the foliage, thus preventing the much dreaded lettuce rot. It was found that the lettuce grew much better by this method of watering than when water was applied to the surface of the soil. Operations were then enlarged, until entire houses are now supplied with water in this manner. In order to operate the plan successfully water tight benches are erected. These may be made in various ways, but matched flooring laid in white lead answers very well. Drain tile are laid on these benches 2½ feet apart and covered with soil. Watering is accomplished by pouring into the ends of the tile, where a T joint is laid, for convenience.

Some later experiments show that the same principle may be extended successfully, beginning as soon as the seed is sown. The seed is sown in shallow boxes with slatted bottoms. A convenience size is 16x24 inches and two inches deep. Lath is used for the bottoms, and is laid close together, which allows the water to pass through, but prevents the soil falling out. These boxes, or flats are filled with soil and the seed sown in very shallow marks made on the surface of the soil. Covering may be done with the fingers or a board, and the whole surface pressed down firmly with a block No water is applied to the surface of the soil, but the boxes are placed in a shallow vat in which is a small quantity of water. These seed boxes are allowed to remain in the vat until the soil is quite well soaked, then taken out and placed in a warm part of the house. The seed germinates very quickly and certainly by this method, hence should not be sown so thickly as when surface watering is practiced. When large enough the young plants are transplanted into flats of the same size as above named, and watering is done in the same manner. Labor is saved by following this method, although the contrary may seem to be true. That is because watering need be done less frequently than by the old method, but even if such were not the case the results justify the adoption of the new method.

Both radishes and cucumbers flourish under the same treatment, although they are not benefitted to such an extent as lettuce. Tomatoes respond less than any other crop, but they show sufficient gain to pay for fitting up the house for sub irrigation.

Experience has shown that a sub irrigation plant pays for itself in one season, or one hundred per cent. on the investment. The estimate is for green-house crop in general, but for lettuce alone the profit is greater.

In a previous bulletin tomato-culture after lettuce was given in detail, but there are other crops which may be grown with profit, such as radishes, cucumbers and parsley. Under the benches the space may be used for mushrooms, dandelion, pie plant and asparagus. The mushroom crop is about as profitable as any that can be grown, and yet it requires no light. It has the advantage, also, of not being produced so largely in the South as other crops, hence competition is not to be feared.

In view of the facts that have been stated it is evident that an important industry may now be built up. If such a thing is not done it will be because gardeners do not take advantage of the situation. The business ought to be encouraged, for whatever is done in this line means just that much added to our productive capacity.—*Ohio Experiment Station.*

TOMATOES AS A GREENHOUSE CROP.

In the eastern states tomatoes are often forced in midwinter, at which time they bring fancy prices in the large cities. A higher temperature is required to force tomatoes than most other crops, artificial pollenization must be practiced, and great care taken to keep the plants free from disease. These items reduce the profits very materially, and renders this business quite uncertain except near large cities.

The Ohio Experiment Station has found that there is more profit in keeping the houses filled with lettuce during the greater part of the winter and holding back tomatoes for a spring and early summer greenhouse crop.

Lettuce is not a profitable greenhouse crop later than April, but tomatoes flourish in the houses during the spring and early summer months much better than in winter. The crop is mostly gathered during May and June, at which time 16 to 20 cents per pound is realized.

This is less than half the price paid in winter, but owing to decreased cost of production and greater demand, there is more profit in a spring than a winter crop.

In order to have plants ready to fill the houses as soon as the last crop of lettuce is out, tomato seed is sown about the last week in December. Seed is sown in shallow boxes, not having more than two inches depth of soil. As tomatoes require considerable heat, these seed boxes should be kept in a warm part of the greenhouse.

Soon after the plants have formed the second leaves they should be transplanted. For this purpose the same kind of shallow boxes are used as before, and in these the young plants are set about two inches apart each way. If kept growing nicely the plants will begin to crowd each other in three or four weeks, when they should be again transplanted. This time they are to be set about four inches apart each way. The same kind of boxes may be used as before, but greater care must be taken to keep the plants watered than when younger, as more water is required because of the greater amount of foliage. During all stages of growth in which the plants are kept in boxes or flats, a good method of watering is to place the boxes of plants in a shallow vat, holding a small quantity of water. If these plant boxes have slatted bottoms as they should have, the water soaks up evenly through the soil, and in a more thorough and satisfactory manner than when surface watering is practiced. The only precautions that need be observed in following this method is not to water until the plants require it, and not to keep them soaking after the soil is fairly wet. If desired, the plants may be set in four inch pots or in large beds at the second transplanting, instead of into boxes, but the latter plan has some advantages over the others.

Early in March the plants ought to be a foot or more in height, and just coming into bloom. They are then ready to set in permanent beds for fruiting.

These beds should contain about six inches of soil. The plants are set about 20 inches apart each way, and in order to occupy the ground fully lettuce plant are set between. As soon as the lettuce is cut the tomato plants are given the whole space. The soil should be stirred frequently, and it is advisable to mulch the surface with half-rotted manure. An important part of the care of the crop consists in pruning and training. The plants must be tied to some support and the tying must be repeated as often as required, as the plants increase in height Stakes may be used for support, or strings may be tied to the rafters, and the lower and fastened to short stakes driven near the plants and the plants tied to these strings. The side shoots near the base of the

plants must be removed as they appear and the plants kept trained to single stalks, or if preferred two shoots may be allowed to start from each plant, but in any case the surplus suckers must be removed as they appear. This pruning hastens maturity and makes it possible to grow the plants within the narrow limits named. It is not necessary to remove any foliage, unless it becomes diseased, in which case it is better off than on, as it does no good, besides it is unsightly and serves to spread the disease.

As before stated tomato plants are less subject to disease late in the season than early, but the best preventive of disease is good care so as to keep the plants growing thriftily. A fair crop when grown in this manner is about five pounds per plant.

This cannot be rated as a highly profitable greenhouse crop, but when it is considered that it is grown at a time when the houses would otherwise remain idle the reason for growing it is apparent.

Concerning varieties but little need be said. Almost any smooth-fruited sort is suitable for the purpose. The extra early varieties are too rough and irregular for the purpose, as their close pruning seems to make the defect still more prominent. Acme, Favorite and Beauty are very satisfactory. Dwarf Champion does very well, but is less fruitful than the above, and is more difficult to prune, its earliness is its chief merit. A method of growing early tomatoes out of doors to succeed the greenhouse crop will be given at another time.—*Ohio Experiment Station.*

HEDGES.

By D. Nicol, Cataraqui, Ont.

Having lately seen many scrub brush skeletons of what had at some time been intended for hedges, I feel inclined to speak on this subject. I have seen hundreds of rods of privet, buckthorn, honey locust, and other hedges, so-called, which served no purpose except to mar the natural beauty of the grounds on which they were eking out a miserable existence. A thrifty, well-kept hedge is an object of beauty, which may be useful as well as ornamental. There are, however, few of such to be seen. They can be grown only under favorable conditions.

I would not be understood as recommending the general adoption of hedge fences, because I am sure they would not give general satisfaction. To keep them in good order, the annual amount of labor necessary at a busy time of the year is greater than most farmers could afford, consequently they are very likely to be neglected, but there are places in which hedges are more desirable than any other kind of fence.

Between villa lots, I have seen stone walls erected and crowned with sharp cutting glass of broken ale bottles, while a formidable hedge would have served the purpose better, at less expense, without giving the gaol-yard appearance.

Back yards are enclosed with high board fences which need to be removed every tenth year, while a good hedge would screen the view of everything objectionable to sight—be more healthful, and would last more than a man's lifetime, besides adding to, instead of detracting from, the beauty of a homestead.

I cannot here enter into details, but with a view of assisting enquirers, would mention some essentials. In the first place, the hedge plant must be adapted to the climate, soil and locality in which it is to be grown. I do not know of any kind of tree or shrub which will ever form a good hedge under the shade of large trees. Some kinds may do fairly well where only partially shaded, but there can be no dense foliage hedges without the free access of sunlight and air from morning till night.

Sometimes hedges are planted close to a board fence, with a view of having the fence taken away, but in every instance this scheme has proved a failure, because the sun and air were partially excluded from one side of the hedge.

It is quite possible to have a fairly good hedge grow along side of a wire fence, and, in the country south of us, the Osage orange is now commonly used for that purpose; but it is too tender for the greater part of Canada.

A question very often asked is: What kind of tree or shrub makes the best hedge? No one who has had much experience with hedges would say that any one kind is the best under all circumstances.

For an ornamental hedge, I would unhesitatingly recommend the American Arbor vitæ. It endures close trimming well, and can be kept in neat and tidy dimensions for a greater length of time than any tree that I know of. I know of some hedges of it which are in good condition twenty eight years after planting, and they are less than three feet high. It is never infested with injurious insects; intense frost does not hurt it; and dry, hot weather seems to be congenial to it. In this respect, it is perhaps the hardiest tree which grows in Canada or elsewhere. That may be the reason why it was given the name " Tree of life." In its native state it is found growing on dry, rocky hills, and also in water-soaked muck swamps. It thrives on almost any kind of soil, and lives to a great age, yet it is not suitable for any formidable hedge fence. It will not endure bruising or crushing by animals rubbing against it, especially when it is in a frozen state, and cattle seem to have a singular fondness for doing that very thing.

The common barberry being very prickly, is given a wide berth by animals of all kinds. The most enduring hedge-fence I have seen was of this shrub. It thrives well on any soil which is not of a poor, cold, or wet nature. It grows closely, and by annual trimming it is easily kept in any desirable size or shape, soon forming a hog-proof fence that will last for generations. The common barberry is easily propagated, sold cheaply by nurserymen, and has few insect enemies. The purple-leaved barberry, although less robust, is quite as hardy and more ornamental. It is said that barberry hedges breed rust on wheat. I have never seen any satisfactory evidence to that effect, and think the evil is wholly imaginary.

The hawthorn, which is commonly used for hedge fences on the British Isles, does not thrive well here; several kinds of aphides attack and generally destroy it. Our native thorn is of too slow growth. The Buckthorn, which is no relation of any of the other thorns, is quite as hardy, makes a compact hedge when skilfully trimmed. No insects infest its leaves, and mice will not girdle its bark.

Where rapid growth of a shelter hedge is desired the Norway spruce is particularly well adapted. It is quite as hardy as our native white spruce, and is of much more robust growth, and can be successfully transplanted when of large size. The hemlock spruce makes a beautiful hedge while young, but its lower branches soon die, leaving the hedge bare at the bottom, and much trimming shortens its life, hence it is not well adapted for the purpose.

The honey locust is sometimes planted for shelter hedges, but on account of its excessive tendency to send out suckers a great distance from its trunk, I would discourage its use; yet, it is not as objectionable in this respect as the Chinese abele, which should never be planted where any other tree will grow.

There is no lack of variety of plants suitable for ornamental hedges. The Japan quince (three varieties), makes an excellent hedge where the climate is not too severe.

The Tartarian honeysuckle (of four varieties), is quite hardy. It makes a superb hedge, and so does the Persian lilac, and several varieties of shrubby spiræ; also, mock orange and viburnum. The privet is not quite hardy enough for all parts of Ontario, but where the climate is favorable it makes a compact, neat hedge. The mulberry is also now planted for hedges in favorable climates.

If I were to speak of tree shelters on prairie and other rich flat lands, where quick growth is especially desirable, I would recommend the poplars and several varieties of the willow, but for making formidable hedge fences they have not proved satisfactory. About twenty years ago many thousands of dollars was extracted from the Ontario farmers through the white willow swindle. A company of scamps from Michigan recommended it as being the grandest thing for hedges ever discovered. It was purchased and planted extensively throughout the country, and now all that remains to be seen of it is some rows of widespreading clusters of very ugly trees. Yet, I dare say some credulous farmers will again be humbugged in the same way by the yellow or black willow, both of which are nearly as worthless for hedge purposes as the so-called white willow. I will not, however, occupy your time discussing hedge frauds on the farming community, but would merely remark that intending hedge planters should in some measure be guided by the experience of others.

APPENDIX II.

REPORTS FROM AFFILIATED ASSOCIATIONS, 1892.

BURLINGTON HORTICULTURAL ASSOCIATION.

We have to report a fairly satisfactory year for the Society. Several new members have been added, the interest is sustained, and our work is having a decidedly beneficial effect upon the members. Instead of working at random as is largely the case when an individual relies entirely upon his own resources, the collective information of the entire society becomes his property with useful and practical results. We find that personal inquiry is stimulated, new zest given to our efforts in growing fruit, we are enabled to work more intelligently and methodically, and are better able to explain the reason of a given line of action. It is difficult to place a money value on the benefits derived from such an association, but there is a financial gain which more than amply repays our time and efforts.

At the instance of the Superintendent of Fruit for Ontario, Mr. A. H Pettit of Grimsby, several members of the Association shipped to him baskets and kegs of choice fruit for the Columbian Exposition at Chicago It might also be mentioned that this Association was awarded first prize on the best display of fruits at the Toronto Exhibition.

For the past three years the members of the Association have made a practice of taking an annual outing, early in the month of September. The fruit plantations in the neighborhood of Burlington were the first visited, then those of the Grimsby district, and this year, the orchards of Oakville and Lockport, N. Y. We find these outings interesting, exhilarating, instructive and certainly useful.

The following is a brief synopsis of some of the papers and addresses delivered at the meetings of the Association: "Soils and situations for the larger fruits," by the Secretary, Mr. A. W. Peart. He is of the opinion that deep loams of clay or sand, with a clay or shale sub-soil are the best adapted for fruits. Light, sandy soils, as well as heavy clay are not suitable, the former are too porous, while the latter are too adhesive. Shallow soils resting on rock are also unsuitable, as well as alluvial deposits, which give a rank but tender growth of wood. Soils for fruit purposes should be well drained, if not naturally, by artificial means. Trees, vines and plants on wet soils do not thrive, the former are stunted, immature, and soon die, while the latter are continually cut down by late spring frosts. This district is highly favoured, the lake modifies our climate, while the mountain on the west and north-west sides is a valuable protection. In pears and grapes, especially, we should produce an article superfine in quality.

A supplement to this paper was given by Mr. Jos. Lindley, "Soils and situations for small fruits." For gooseberries and red currants he prefers a sandy loam, but considers alluvial deposits or clay loams also good. For strawberries heavy sandy loam, inclined to be damp, but not wet; blackberries, also, require a similar soil.

Mr. W. V. Hopkins gave a paper on "Soil Fertilizers." He thinks that stable manure well decomposed is the best, it being a perfect manure. He has tried land plaster on manure heaps and found that it prevented the escape of ammonia. Phosphoric acid and potash are very necessary for fruits and may be applied, either in the form of unleached hard wood ashes or phosphates. One of the very best fertilizers, however, lies in thoroughly cultivating plants, vines and trees, and thus make use of the food elements that nature has placed in the soil.

The following are a few of the questions asked :

What is the cheapest and best way of protecting trees from mice? A. The practice of banking trees is not only expensive but ineffectual, as the mice will run up the bank and girdle the trees. Clean cultivation is the best preventive, but is not always practicable. Where a man has a great many acres of young fruit trees, it is impossible to grow hoed crops on all the ground, summer fallowing would be a waste of land, and grain or grass must necessarily be grown in some measure. Tar paper sometimes blisters the trees, thereby stunting their growth, but we believe this is due to its fitting the trunk too tightly. It should be tied on loosely and removed early in the spring, and, in spite of its blistering tendencies, is the cheapest and best preventitive. A new tar paper, that is tar sandwiched between papers, is being tried here this winter for the first time. It is thought that it cannot blister the tree, the only question being whether there is sufficient tar in it to deter the mice.

A question as to when native plum trees, planted in a standard plum orchard with the object of top grafting them, should be so treated, was answered by the Vice-President, Mr. J. S. Freeman, who thought they should be grafted as early as possible after the first season.

Officers.

The following are the officers of the Association for the year 1893 :

President : Geo. E. Fisher, Freeman P.O.

Vice-President : J. S. Freeman, Freeman P.O.

Secretary-Treasurer : A. W. Peart, Freeman P.O.

Assistant-Secretary : Geo. N. Peer, Freeman P.O.

Directors : Apples, E. Peart ; Grapes, C. N. Dynes ; Small Fruits, W. V. Hopkins ; Pears and Peaches, Dr. Zimmerman ; Plums, W. F. W. Fisher ; Vegetables, H. Williams ; Shipping, Jos. Lindley.

Entertainment Committee : President, Vice-President, Secretary-Treasurer.

Auditors : C. N. Dynes and Geo. N. Peer.

Report of Fruits.

While in our locality, this has been a good season for the growth of wood, which is going into winter well matured, it has been generally unfavorable for fruit, the wet weather of May and June causing undue development of fungoid growth, thereby seriously impairing the quality of pears and apples, of which the yields were large. There were scarcely any plums, due probably to the heavy crop of last year. The peach crop was nil, the buds being frozen during winter. Cherries were few, owing, it is thought, to imperfect fertilization, the weather being wet and cold during the blossoming season. Grapes were a light crop. A few of the more tender varieties were frozen in the winter, while many were so late in ripening as to be practically useless. Some vineyards on thoroughly drained soil gave a heavy crop of fine quality. Raspberries and blackberries were a light crop. Some of the varieties, notably the Cuthbert, suffered seriously from frost during winter. The strawberry crop was fair, but of inferior quality, small and sour, due, we think, to imperfect fertilization and protracted wet weather. Red currants were a light crop ; black currants a heavy crop, the quality of both being good. Gooseberries were a fine crop and were unusually free from mildew. Quinces, a full crop, although relatively few are grown in this locality. The acreage of fruit plantations has been largely increased during the past year, especially in the direction of pears and plums. Generally speaking, the crop of vegetables was fair, tomatoes heavy, radishes, table carrots and beets unusually good, onions and cauliflower good, cabbage and celery light. Melons were a good crop but poor in quality, potatoes a light crop and badly effected by the rot.—Geo. E. Fisher, President.

BRANT COUNTY FRUIT GROWERS' ASSOCIATION.

This Society was formed in 1890. The fruit growers of Brant county were desirous of uniting for two principal reasons, first, that we might discuss subjects of general interest to the fruit grower, and thereby benefit by each others experience, and, second, to send one of our members to the northern markets to open up places that we might safely send our surplus fruit and thereby save money. In former years each man went himself and the expense was much heavier than the expense of one man.

During the two years of our existence we have held three and four open meetings, during the winter season, and as many more society meetings, which have been very helpful to successful fruit growing. We have averaged a membership of over fifty. Mr. Thos. A. Ivey was President for two years, and was a very able president.

Officers.

The present year, at the annual meeting, we elected the following officers:

President: J. R. Howell.

Vice-President: A. Dawson.

Secretary-Treasurer: D. M. Lee.

Directors: David Greig, Cainsville, John Carnie, Paris, Simon Chapin, Brantford, H. J. Bryan, Mohawk, A. B. Lee, Northfield Centre, Jas. Miller, Paris, Thos. A. Ivey, Brantford, D. Westbrooke, Cainsville, Charles Grantham, Cainsville.

The Treasurer's report showed the Society to be in good position, with a small balance on hand. As the Ontario Fruit Growers' Association have held their winter meeting for 1892 in our county, we have received a new impetus for the year. Should the papers given during the next year be as good as the last year, we will preserve and send to the Ontario Association, to the *Horticulturist* for publication, or hold over for the annual report, as may be thought advisable by our superiors.

The county of Brant is noted for its large apple orchards, and the quality not surpassed in the Province. Pears and plums are not so largely grown, but can be grown very successfully, especially in the northern portion of the county. Strawberries and raspberries are very largely grown in all parts of the county, and also tomatoes. But the surplus of tomatoes, as well as strawberries and raspberries, is so heavy that, unless some one should start a canning factory, in a few years many will be compelled to drop out of these kinds of fruit.

D. M. Lee,
Secretary.

PETERBOROUGH FRUIT GROWERS' ASSOCIATION.

The annual meeting was held on the 3rd of February, 1892.

Officers Elected for 1892.

President. George Hilliard.

Secretary. E. B. Edwards.

Committee: James Middleton, J. [illegible], Paul Stenson, James McKeown and G. M. Rogers, in addition to the President and Secretary.

The Treasurer's statement showed receipts for the year $53, and a balance on hand at the close of the year of $160.

Mr. Craig, Horticulturist of the Central Experimental Farm, Ottawa, was present and addressed the meeting on the work of the Experimental Farm, giving the results of his experience in testing new varieties of fruit trees, etc. A long discussion followed, in

* Since learned.

which several members took part, and Mr. Craig answered many questions put to him with regard to the varied difficulties and doubts that the members had experienced. At the afternoon session Mr. A. M. Smith, of St. Catharines, addressed the meeting on the subject of "The Culture of Small Fruits," and this as well was followed by an interesting and useful discussion.

Mr. Gilbert, of the Central Experimental Farm, gave an address on the question of raising poultry in connection with fruit growing, pointing out the advantage to be derived from the manure and the removal of the insect enemies.

Mr. Craig delivered a further address on the subject of "Producing Fruit of the Finest Quality," pointing out amongst other things the necessity of thinning apples and of careful grading.

APPENDIX III.

CATALOGUE OF FRUITS—APPLES.

FOR USE OF JUDGES AT EXHIBITIONS.

EXPLANATORY NOTE.—In the plan of rating, all varieties are supposed to be perfect specimens; then the best varieties under each of three or four heads are rated at ten, and all the more or less inferior varieties by some figure less than ten. It frequently happens, however, even with the best varieties, that imperfect samples are exhibited. In such cases all values given in the Catalogue must be reduced one or more points each, for (1) lack of color, (2) undersize, (3) uneveness of size on plate, (4) wormy, scabby or illshapen specimens, (5) lack of stem or calyx, (6) polished fruits, *i.e.*, having bloom wiped off, or for any other thing which tends to change the natural appearance of the fruit.

The column "Total Value" is for use when prizes are offered for fruits without designating the purpose for which such fruits may be required.

Name.	Season.	Quality.		Commercial value.		Total Value.
		Dessert.	Cooking.	Home market.	Foreign market.	
Alexander	A		9	9	10	28
American Golden Russet	W	9	8	8	9	34
American Summer Pearmain	S	3	1	2		6
Arnold's Beauty	W	5	2	2	3	12
American Pippin	W	5	8	3	5	21
Adam's Pearmain	W	8	8	7	7	30
Autumn Strawberry	A	5	1	2	5	13
Bailey Sweet	W	2	8	1	3	14
Baldwin	W	2	5	7	8	22
Beauty of Kent	A		8	8	7	23
Ben Davis	W		1	8	9	19
Benoni	S	10		1		11
Belmont	W	3	6	4	6	19
Blenheim Pippin	W	6	7	9	10	32
Blue Pearmain	W	6	6	8	8	28
Bottle Greening	W	6	7	2	4	19
Bourassa	W	5	4	3	6	18
Cabashea	W	2	7	8	9	26
Canada Baldwin	W	6	8	8	9	31
Canada Reinette	W	4	8	5	7	24
Cayuga Red Streak	A	2	8	7	8	25
Chenango Strawberry	A	8	3	7		18
Colvert	A	1	9	7	8	25
Cornish Gilliflower	W	1		1	2	4
Cox's Orange Pippin	A	9	3	7	10	29
Cranberry Pippin	W	7	8	8	8	31
Cellini	W	2	8	7	6	23
Domine	W	5	7	6	7	25
Drap d'Or	A	2	6	3	5	16
Detroit Black	A		4	2	4	10
Duchess of Oldenburgh	S	2	10	10	10	32
Dyer	A	7	5	3		
Early Harvest	S	9	3	9		21
Early Joe	S	8	3	3		14
Early Strawberry	S	8	2	7		17
Edgar's Red Streak	W	5	7	7	8	27
Ella	W	2	4	3	5	14
Esopus Spitzenburg	W	9	7	9	10	35
Fallawater	W	7	8	8	9	32
Fall Jenetting	A	3	7	7	7	24
Fall Orange	A	4	7	6	3	20
Fall Pippin	A	6	8	7	7	28
Flushing Spitzenburg	W	6	6	6	7	25
Fameuse	A	9	5	9	8	31

NOTE.—In the first column the letter S denotes summer, A autumn and W winter.

CATALOGUE OF FRUITS.—APPLES.—*Continued.*

Name.	Season.	Quality.		Commercial value.		Total Value.
		Dessert.	Cooking.	Home market.	Foreign market.	
Fall Queen (*See* Haas)						
Gloria Mundi	W		8	6	8	22
Golden Russet (English)	W	8	7	8	9	32
Golden Sweet	A	2	4	1		7
Grand Sultan	A	2	7	7		
Gravenstein	A	9	9	10	10	38
Green Newton Pippin	W	9	4	6	8	27
Grimes' Golden	W	9	2	6	7	24
Haas (*See* Fall Queen)	A	5	7	7	6	25
Hawley	S	6	5	5		16
Hawthornden	A	2	8	7	7	24
Holland Pippin	A	6	8	7	7	28
Hubbardston Nonsuch	W	7	8	8	8	31
Hurlbut	W	5	5	4	6	20
Irish Peach	S					
Jeffries	A	7	6	6	7	26
Jersey Sweeting	A	1	3	1		5
Jonathan	W	9	7	7	8	31
Kentish Fillbasket	A		8	8	8	24
Keswick Codlin	A	1	9	6	7	23
King of Tompkins County	W	8	10	10	10	38
Lady	W	9		1	9	19
Late Strawberry	A	7	5	5	7	24
Lawver	W	5	7	4	5	21
Lord Suffield	A	3	8	6	7	24
Lord Duncan	A	2	9	7	6	24
London Pippin	W		8			
Lowell	A	5	7	4		
Lord Burleigh	A	2	9	5		16
La Rue	W	1	9	10	5	25
Maiden's Blush	A	3	7	7	8	25
Mann	W	4	7	6	8	25
Magog Red Streak	W	3	7	5	7	22
McIntosh Red	W	6	7	7	8	28
Melon	W	8	8	7	8	31
Minister	A	4	6	6	5	21
Monmouth Pippin	W	6	8	6	7	27
Mother	A	8	7	6	6	27
Munson Sweet	A	1	3	2		6
Newtown Spitzenburg	A	7	8	6	7	28
Northern Spy	W	8	10	10	10	38
Newton Pippin	W	9	9	7	10	35
Ontario	W	9	10	10	10	39
Peck's Pleasant	W	7	7	6	8	28
Pennock	W	5	7	7	8	27
Pewaukee	W	4	8	8	8	28
Peach	A					
Phœnix	W	4	7	7	8	26
Pomme Grise	W	9		5	7	21
Pomme Grise d'Or	W	10		6	8	24
Porter	A	5	4	5	3	17
Priestly	W	4	5	6	7	22
Primate	S	7	6	6		19
Prenzea	A	9	9	5	5	28
Princess Louise	W	10	7	8	8	33
Pumpkin Sweet	A		4	1		5
Pumpkin Russet	A	1	6	4	5	16
Pomme Royale (*See* Dyer)						
Rambo	A	5	1	2	5	13
Rawles Janet	W	4	5	3	5	17
Red Astrachan	S	5	7	8		20
Red Belle-fleur	A	2	4	2		8
Red Canada	W	6	6	7	8	27
Red Cathead	A	6	8	7	7	28
Red Russet	W	5	6	7	7	25
Red Bietigheimer	A					
Rhode Island Greening	W	8	10	8	8	34

CATALOGUE OF FRUITS.—APPLES.—*Continued.*

Name.	Season.	Quality.		Commercial value.		Total Value.
		Dessert.	Cooking.	Home market.	Foreign market.	
Ribston Pippin	W	10	8	8	10	
Roxbury Russet	W	6	8	8	9	31
Scarlet Pearmain	A	5	6	5	6	22
Shiawassee Beauty	A	7	6	6		19
Smith's Cider	W	1	4		1	6
Smokehouse	A	3	6	4	6	19
Sops of Wine	S	2	5	2		9
St. Lawrence	A	7	8	8	8	31
Stump	A	5	6	5		16
Summer Rose	S	6	6	4		16
Swaar	W	7	2	1	4	14
Swazie Pomme Grise (*See* Pomme Grise d'Or)						
Stark	W	2	2	7	8	19
Snow (*See* Fameuse)						
Talman Sweet		2	7	5	6	20
Tetofsky	W	1	5	1		7
Trenton	S	10	5	9	9	33
Twenty Ounce (*See* Cayuga Red Streak	A					
Vadevere	A	6	5	4	6	21
Wagener	W	8	7	6	7	28
Wallbridge (*See* Edgar's Red Streak						
Wealthy	W	8	6	9	9	32
Westfield Seek-no-Further	W	7	7	7	8	29
White Astracan	S	1	2	1		4
William's Favorite	W	5	7	5	6	23
Wine Sap	W	7		1	3	11
Wine	W	7	7	8	8	30
Yellow Belle-fleur	W	8	7	5	5	25
Yellow Transparent	S	6	7	6		19

GRAPES.

(This list is subject to revision each year.)

Varieties.	Color.	Season.	Quality for table.	Ship'g value.	Market value.	Total.
Agawam (Rog. 15)	R	L	8	10	9	27
Allen's Hybrid	W	M	5	2	4	11
Amber Queen	R	M	5	4	4	13
Amber	R	L	1	3	2	6
Aminia (Reg. 39)	B	M	8	10	6	24
Ann Arbor	W	E	3	2	3	8
August Giant	B	M	1	1	3	5
Augusta	B	M	6			
Barry (Rog. 43)	B	M	5	9	6	20
Brighton	R	E	9	6	8	23
Black Eagle	B	L	1	3	2	6
Black Pearl	B	L	1	3	2	6
Burnett	B	M	5	5	4	14
Canada	B	M	2	3	1	6
Catawba	R	L	9	8	8	25
Champion	B	E	2	5	5	12

List of Abbreviations :—R red, W white, B black, L late, E early, and M Medium.

CATALOGUE OF FRUITS.—GRAPES.—*Continued.*

Varieties.	Color.	Season.	Quality for table.	Ship'g value.	Market value.	Total.
Clinton	B	L	.....	5	2	7
Concord	B	M	7	6	8	21
Cottage	B	E	5	5	4	14
Creveling	B	E	6	6	3	15
Croton	W	E	4	3	3	10
Cynthiana	B	L	1	2	1	4
Courtland	B	E	2	5	5	12
Delaware	R	E	10	7	9	26
Diana	R	L	6	8	7	21
Duchess	W	L	1	6	7	14
Dracut Amber	R	E	1	6	7	14
Eaton	B	M	7	5	3	15
Early Dawn	B	M	6	4	4	14
Elvira	W	L	1	2	1	4
Empire State	W	L	3	4	4	11
Early Ohio	B	E	3	6	5	14
Eumelan	B	E	6	5	4	15
Eldorado	W	M	7	5	2	14
Etta	W	L	2	4	3	9
Early Victor	B	E	5	4	3	12
Essex (Rog. 41)	B	L	3	7	6	16
Faith	W	E	2	2	3	7
Florence	B	E	2	2	3	7
Goethe (Rog. 1)	R	L	8	5	5	18
Gaertner (Rog. 14)	R	M	8	6	6	20
Hartford	B	E	3	5	6	14
Herbert (Rog. 14)	B	M	6	8	7	21
Highland	B	L	3	4	2	9
Hayes	W	M	5	2	3	10
Herbemont	B	L	1	2	3	6
Iona	R	L	8	7	6	21
Isabella	B	L	3	7	6	16
Ives	B	E	2	5	5	12
Israella	B	L	3	6	4	13
Janesville	B	E	2	3	3	8
Jessica	W	E	5	5	5	15
Jefferson	R	L	6	4	5	15
Jewell	B	M	4	4	2	10
Lady	W	E	7	3	5	15
Lady Washington	W	L	3	5	3	11
Lindley (Rog. 9)	R	E	10	9	9	28
Massasoit (Rog. 3)	R	E	6	4	5	15
Martha	W	M	6	5	3	14
Merrimac (Rog. 49)	B	L	7	9	6	22
Moore's Early	B	E	7	6	9	22
Moyer	R	E	7	7	9	23
Mills	B	M	6	7	3	16
Moore's Diamond	W	E	7	7	7	21
Marion	B	L	1	4	2	7
Niagara	W	M	8	5	9	22
Noah	W	L	1	5	3	9
Norton	B	L	1	5	2	8
Northern Muscadine	R	M	2	6	6	14
Oneida	R	M	3	2	4	9
Ontario	B	M	2	4	4	10
Othello (Arnold's No. 1)	B	L	2	3	2	7
Perkins	R	E	2	6	6	14
Pocklington	W	M	6	6	6	18
Prentiss	W	L	5	7	4	16
Poughkeepsie Red	W	E	6	6	7	19
Pearl	R	L	1	2	1	4
Rebecca	W	M	8	4	4	16
Requa (Rog. 28)	R	M	7	8	7	22
Rentz	B	M	1	2	2	25
Rockingham	B	M	7	6	8	21
Roger No. 17	B	M	6	6	6	18
Roger No. 32	R	L	3	7	6	16

CATALOGUE OF FRUITS.—GRAPES.—*Continued.*

Varieties.	Color.	Season.	Quality for table.	Ship'g value.	Market value.	Total.
Roger No. 33	B	M	5	7	6	18
Roger No. 11	B	M	7	8	7	22
Salem (Rog. 22)	R	M	8	8	8	24
Sanasqua	B	L	5	5	5	15
Secretary	B	M	3	4	3	10
Telegraph	B	M	3	5	3	11
Transparent	W	L	1	4	1	6
Triumph	W	L	1	5	1	7
Taylor	W	L	1	4	2	7
Ulster Prolific	R	M	4	5	5	14
Union Village (*See* Ontario)						
Vergennes	R	L	6	10	8	24
Victor (*See* Early Victor)						
Walter	R	M	6	7	7	20
Worden	B	E	9	4	8	21
White Ann Arbor	W	E	4	4	4	12
Wilder (Rog. 4)	B	M	8	9	8	25
Wyoming Red	R	E	5	6	7	18
Woodruff Red	R	M	4	6	5	15

PEARS.

Varieties.	Dessert.	Home market.	Total.
Summer.			
Ananas d'Eté	5	7	12
Bartlett	8	10	18
Beurre Giffard	7	8	15
Brandywine	8	9	17
Clapp's Favorite	7	8	15
Dearborn	6	4	10
Doyenne d'Eté	6	6	12
Kirkland	6	6	12
Manning's Elizabeth	7	6	13
Osband's Summer	8	6	14
Petite Marguerite	8	6	14
Souvenir des Congres	4	7	11
Tyson	9	6	15
Autumn.			
Belle Lucrative	10	4	14
Beurre Bosc	9	8	17
Beurre Hardy	8	8	16
Beurre Superfine	7	6	13
Buffam	4	4	8
Doyenne Bonssock	6	8	14
Doyenne Grey	8	6	14
Doyenne White	8	7	15
Duchess d'Angouleme	6	8	14
Flemish Beauty	8	9	17
Frederick Clapp			
Howell	7	9	16
Kieffer	3	5	8
Louise Bonne	5	6	11
Seckel	10	6	16
Sheldon	9	9	18
Swan's Orange	4	6	10
Triumphe de Vienne	8	8	16
Doyenne de Comice	8	6	14

CATALOGUE OF FRUITS.—PEARS.—*Continued.*

Varieties.	Dessert.	Home market.	Total.
Winter.			
Anjou	10	9	19
Beurre Gris d'Hiver	4	5	9
Clairgeau	4	8	12
Dempsey			
Dana's Hovey			
Diel	5	6	11
Glout Morceau	8	8	16
Goodale	8	8	16
Jones			
Josephine de Malines	8	8	16
Lawrence	7	8	15
Mount Vernon	6	5	11
Reeder			
Vicar	2	3	5
Winter Nelis	8	8	16
Doyenne			
Prest Druard			

DISTRICT FRUIT LIST.—APPLES.

Showing the varieties considered most desirable for planting in the various Agricultural Districts in Ontario.

District No. 1.—Stormont, Dundas, Glengarry, Prescott and Cornwall.

Summer.—Yellow Transparent, Duchess of Oldenburgh.
Autumn.—Alexander, Fameuse, Gideon, St. Lawrence
Winter.—LaRue, Pewaukee, Golden Russet, Ben Davis, Talman Sweet.

District No. 2.—Lanark, Renfrew, City of Ottawa, Carleton and Russell,

Summer.—Yellow Transparent, Duchess of Oldenburgh.
Autumn.—Alexander, Montreal Peach, Wealthy and Haas.
Winter.—Pewaukee, Golden Russet, Scott's Winter, Talman Sweet and Edgar's Red Streak.

District No. 3.—Frontenac, City of Kingston, Leeds, Grenville and Brockville.

Summer.—Yellow Transparent, Duchess of Oldenburgh and Red Astrachan.
Autumn.—Alexander, Wealthy and St. Lawrence.
Winter.—Golden Russett, Pewaukee, LaRue, Ben Davis and Red Canada.

District No. 4.—Hastings, Prince Edward, Lennox and Addington.

Summer.—Yellow Transparent and Duchess of Oldenburgh.
Autumn.—Alexander, Trenton, Gravenstein and Wealthy.
Winter.—Ontario, Hubbardson's Nonsuch, Pewaukee, Ben Davis and Cranberry Pippin.

District No. 5.—Durham, Northumberland, Peterboro', Victoria and Haliburton.

Summer.—Yellow Transparent and Duchess of Oldenburgh.
Autumn.—Alexander, Colvert, St. Lawrence and Gravenstein.
Winter.—Ontario, Hubbardson's Nonsuch, Pewaukee, Ben Davis and Blenheim Pippin.

District No. 6.—York, Ontario, Peel, Cardwell and City of Toronto

Summer.—Yellow Transparent and Duchess of Oldenburgh.
Autumn.—Alexander, Gravenstein, Red Beitigheimer and Wealthy.
Winter.—Golden Russet, Pewaukee, Ontario, Ben Davis and Hubbardson's Nonsuch.

District No. 7.—Wellington, Waterloo, Wentworth, Halton, Dufferin and City of Hamilton.

Summer.—Yellow Transparent, Red Astrachan and Duchess of Oldenburgh.
Autumn.—Gravenstein, Colvert and Wealthy.
Winter.—Golden Russet, Ontario, Blenheim Pippin, Baldwin and Cranberry Pippin.

District No. 8.—Lincoln, Welland, Haldimand and Monck.

Summer.—Duchess of Oldenburgh and Red Astrachan.
Autumn.—Gravenstein, Ribston Pippin and Wealthy.
Winter.—Blenheim Pippin, Ontario, Princess Louise, Golden Russet and Cranberry Pippin.

District No. 9.—Elgin, Essex, Oxford and Norfolk.

Summer.—Duchess of Oldenburgh and Red Astrachan.
Autumn.—Gravenstein, Twenty Ounce and Fall Pippin.
Winter.—Blenheim, Pippin, Ontario, Baldwin, R. I. Greening and Golden Russet.

District No. 10.—Huron, Bruce and Grey.

Summer.—Yellow Transparent and Duchess of Oldenburgh.
Autumn.—Gravenstein, Wealthy and Colvert.
Winter.—Pewaukee, Ontario, Baldwin, Hubbardston's Nonsuch and Cranberry Pippin.

District No. 11.—Middlesex, Perth and City of London.

Summer.—Duchess of Oldenburgh and Yellow Transparent.
Autumn.—Gravenstein, Colvert, Alexander and Fall Pippin.
Winter.—Golden Russet, Ribston Pippin, Ontario, Hubbardston's Nonsuch and Cranberry Pippin.

District No. 12.—Essex, Kent and Lambton.

Summer.—Yellow Transparent and Duchess of Oldenburgh.
Autumn.—Gravenstein, Chenango, Strawberry, Wealthy and Lowell.
Winter.—Ontario, Blenheim Pippin, Baldwin, R. I. Greening and Golden Russet.

District No. 13.—Algoma, Simcoe, Muskoka and Parry Sound.

Summer.—Duchess of Oldenburgh and Yellow Transparent.
Autumn.—Alexander, Colvert, Red Beitigheimer and St. Lawrence.
Winter.—Pewaukee, Golden Russet, Scott's Winter, LaRue and Wealthy.

DISTRICT FRUIT LIST.—GRAPES.

District No. 1:

Black.—Champion, Worden, Early Victor, Moore's Early.
Red.—Delaware, Lindley, Moyer, Wyoming Red.
White.—Eldorado, Niagara, Jessica, Vergennes.

District No. 2:

Black.—Barry, [illegible]og. 17, Herbert, Moore's Early, Worden.
Red.—Delaware, Gartner, Norwood, Vergennes, Lindley.
White.—Duchess, Kensington, Moore's Diamond, Lady.

District No. 3:

Black.—Champion, Moore's Early, Worden, Hartford.
Red.—Lindley, Brighton, Delaware.
White.—Moore's Diamond, Jessica, Eldorado.

District No. 4:

Black.—Worden, Moore's Early, Early Victor.
Red.—Wyoming Red, Delaware, Moyer.
White.—Jessica, Moore's Diamond, Niagara.

District No, 5 :

Black.—Champion, Worden, Wilder.
Red.—Brighton, Delaware, Salem, Lindley, Agawam.
White.—Niagara.

District No. 6 :

Black.—Worden, Moore's Early, Champion.
Red.—Brighton, Lindley, Delaware, Wyoming Red.
White.—Jessica, Niagara.

District No. 7 :

Black.—Concord, Worden, Rog. 4—44, Moore's Early.
Red.—Rog. 9—15, Vergennes, Delaware, Brighton.
White.—Niagara, Moore's Diamond.

North Lake District :

Black.—Champion, Worden, Rog. 4, Moore's Early.
Red.—Wyoming Red, Salem, Rog. 9, Delaware, Brighton.
White.—Jessica, Lady, Niagara.

District No. 8 :

Black.—Concord, Worden, Rog. 44, Moore's Early.
Red.—Rog. 9—15, Vergennes, Delaware, Brighton.
White.—Niagara, Moore's Diamond, Pocklington.

District No. 9 :

Black.—Worden, Concord, Rog. 4—44 Moore's Early.
Red.—Delaware, Lindley, Agawam, Brighton.
White.—Niagara, Pocklington.

District No. 10 :

Black.—Concord, Moore's Early, Worden.
Red.—Brighton, Delaware, Lindley.
White.—Niagara, Lady.

Lake Shore Division :

Black.—Concord, Worden, Moore's Early, Barry.
Red —Agawam, Brighton, Lindley.
White.—Niagara, Lady.

District No. 11 :

Black.—Concord, Worden, Rog. 19, Rog. 4.
Red.—Rog. 9—15, Brighton, Delaware.
White.—Niagara, Moore's Diamond, Jessica.

District No. 12 :

Black.—Concord, Worden, Moore's Early, Hartford.
Red —Delaware, Walter, Rog. 15—22, Brighton.
White.—Niagara, Prentiss, Lady.

District No. 13 :

Black.—Worden, Moore's Early, Champion.
Red.—Delaware, Lindley, Wyoming Red.
White.—Jessica, Moore's Diamond, Lady.

In compiling the foregoing Grape Lists we have consulted the Directors, as well as the leading fruit growers throughout the several Districts. We have also tried to frame the lists so as to advise the planting of such varieties as bear the highest general points for each District for hardiness, productiveness, etc., shipping quality of fruit, and commercial values.

G. W. Cline, *Chairman of Committee.*

PUBLIC ACCOUNTS

OF THE

PROVINCE OF ONTARIO

FOR THE

YEAR ENDED 31st DECEMBER,

1892.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

TORONTO:
PRINTED BY WARWICK & SONS, 68 AND 70 FRONT STREET WEST.
1893.

To His Honour the Honourable G. A. KIRKPATRICK,

Lieutenant-Governor of Ontario:

MAY IT PLEASE YOUR HONOUR:

The undersigned has the honour to present to your Honour the PUBLIC ACCOUNTS of the Province of Ontario for the year ending 31st December, 1892.

Respectfully submitted,

RICHARD HARCOURT,
Treasurer.

TREASURY DEPARTMENT, ONTARIO,
TORONTO, March 10th, 1893.

PROVINCIAL AUDITOR'S REPORT.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 30th, 1893.

To HON. RICHARD HARCOURT,
Treasurer of Ontario:

I have the honor to present to you the Public Accounts for the year 1892.

For the information of the Legislative Assembly, I beg to submit the following Departmental Reports and Treasury Board Orders with reference to overdrafts of appropriations under Schedule "A" of the Supply Bill.

Education—Superannuated Teachers..... $3,000 00

EDUCATION DEPARTMENT,
TORONTO, June 10th, 1892.

The undersigned respectfully reports to His Honor, the Lieutenant-Governor in Council:

That the sum appropriated for the sub-service of "Superannuated Teachers" is exhausted, and as it is necessary that the allowances of worn-out teachers should be all paid without delay, the undersigned respectfully recommends that authority be given under the Act 49 Vict., Cap. 4, Sec. 20, for appropriating a further sum of $3,000 to meet the payment of present schedule for $1,237.25, and an approximate estimate of allowances still due.

The amount asked for, above present schedule, to be placed to the credit of the Provincial Treasurer to meet future payments during year, as required.

(Sgd.) G. W. ROSS,
Minister of Education.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, June 14th, 1892.

SIR,—I beg to forward herewith for the approval of the Treasury Board, an application from the Education Department for a warrant for $3,000, in favor of the Hon. the Provincial Treasurer, to meet payments which it will be necessary to make in excess of the appropriation for "Superannuated Teachers."

Cheques will be issued under the above warrant as approved certificates are received from the Department of Education.

Your obedient servant,

(Sgd.) C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTES OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable the Minister of Education, dated the 14th day of June, A.D. 1892, the Treasury Board doth hereby, under the provisions of R. S. O., Cap. 21, Sec. 20, authorize the issue of a warrant for the sum of three thousand dollars ($3,000), in favour of the Honorable the Treasurer to meet certain payments now due, and payable to Superannuated Teachers, amounting to the sum of one thousand two hundred and thirty-seven dollars and twenty-five cents $1,237.25), and such other payments as may from time to time become due and payable, and that cheques be issued to the proper persons upon receipt of approved certificates from the Education Department.

Certified,

J. LONSDALE CAPREOL,
Clerk, Treasury Board.

The Honorable,
THE TREASURER.

Education—Superannuated Teachers..... $732 00

Department of Education,
Toronto, August 16th, 1892.

The undersigned respectfully reports to His Honor, the Lieutenant-Governor in Council:

That the sum appropriated for the sub-service of "Superannuated Teachers" is exhausted, and as it is necessary that the allowances of worn-out teachers should all be paid without delay, the undersigned respectfully recommends that authority be given under the Act 49 Vict., Cap. 4, Sec. 20, for appropriating a further sum of $732, to meet the payment of the accompanying schedule of unpaid claims.

(Sgd.) G. W. ROSS,
Minister of Education.

Provincial Auditor's Office,
Toronto, August 20th, 1892.

Sir,—I beg to enclose herewith an application from the Education Department, for payment under authority of 49 Vict., Cap. 4, Sec. 20, of further allowances to Superannuated Teachers amounting to seven hundred and thirty-two dollars.

The schedule referred to in the Minister's Report, is filed in this office.

Your obedient servant,
C. H. SPROULE,
Provincial Auditor.

The Clerk,
Treasury Board.

Minutes of the Treasury Board on Matters Referred to them for Consideration.

Upon consideration of a report of the Honorable the Minister of Education, dated the 16th day of August, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O., 1887,

authorize the issue of a warrant for the sum of seven hundred and thirty-two dollars ($732), in favour of the Honourable the Treasurer, for the payment of certain allowances to Superannuated Teachers, the appropriation for such service, having become exhausted.

Certified,

J. R. CARTWRIGHT,
for Clerk, Treasury Board.

The Honourable,
THE TREASURER.

Education—Departmental Examinations..... $2,694 97

DEPARTMENT OF EDUCATION,
TORONTO, September 23rd, 1892.

The undersigned respectfully reports to His Honor, the Lieutenant-Governor in Council:

That the sum appropriated for the sub-service of "Departmental Examinations" is insufficient for the current year, and that after providing for payment of salaries to end of year, necessary printing, and for the services of Associate Examiners now reading Candidates' Appeals, a further amount of $2,694.97 is required for this sub-service.

The undersigned therefore respectfully recommends that authority be given under the Act 49 Vict., Cap. 4, Sec. 20, for appropriating a further sum of $2,694.97, to be placed to credit of the Honorable Provincial Treasurer, to meet the deficiency as per accompanying schedules.

(Sgd.) R. HARCOURT,
Acting Minister of Education.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, September 23rd, 1892.

SIR,—I beg to enclose herewith for approval of Treasury Board, a recommendation from the Education Department, for payment of accounts amounting to $2,694.97 and chargeable to "Departmental Examinations."

The schedules referred to in the report of the acting Minister of Education, are fyled in this office. They shew payments due Examiners amounting to the above-mentioned sum.

Your obedient servant,

C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable Mr. Harcourt, acting Minister of Education, dated the 19th day of September, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O. 1887, authorize the issue of a warrant for the sum of two thousand six hundred and ninety-four dollars and ninety-seven cents ($2,694.97) in favor of the Honorable the Treasurer, for the payment of accounts, chargeable to "Departmental Examinations," the appropriation for such service having become exhausted.

Certified,

J. R. CARTWRIGHT,

for Clerk, Treasury Board.

Legislation—Stationery, Printing and Binding..... $5,000 00

QUEEN'S PRINTER'S OFFICE,

TORONTO, September 26th, 1892.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council :

That the appropriation for Legislative Printing and Binding has been exhausted. That this is due to the extra amount of printing necessary in connection with the Legislation of last session. The Sessional Statutes are more than double the usual size ; a large special edition of the Consolidated Municipal and Assessment Act was issued, and the Private Bills were unusually numerous.

The undersigned therefore requests that authority be given the Honorable the Provincial Treasurer under the Act R. S. O. 1887, Cap. 21, Sec. 20, to pay the certificate, viz : $5,000.

Your obedient servant,

L. K. CAMERON,

Queen's Printer.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, September 27th, 1892.

SIR,—I beg to enclose herewith for the approval of the Treasury Board, a recommendation from the Queen's Printer, for payment of the sum of five thousand dollars ($5,000) to Messrs. Warwick & Sons, on account of contract for printing and binding.

Your obedient servant,

C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Queen's Printer, approved by the Honorable the Treasurer, dated the 26th day of September, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Chap. 21, R. S. O. 1887, authorize the issue of a warrant for the sum of five thousand dollars ($5,000) in favour of the Honourable the Treasurer, to pay accounts for printing in connection with legislation, the appropriation for such service having become exhausted.

Certified,

J. L. CAPREOL,
Clerk Treasury Board.

The Honourable,
THE TREASURER.

Public Buildings.—Deaf and Dumb Institute..... $566 58

DEPARTMENT OF PUBLIC WORKS.
TORONTO, November 23rd, 1892.

The undersigned respectfully reports to His Honour, the Lieutenant-Governor in Council:

That the capital account appropriations for the Belleville Institute for the Deaf and Dumb is exhausted, and the following accounts for the reconstruction of its steam-heating appliances, etc., are unpaid, namely:

James Morrison & Co., Toronto	$200 84
Poole & Co., Toronto	310 83
Malcolm Moon, Belleville	46 00
Thomas Hanley, "	8 91
Total	$566 58

The undersigned therefore recommends that authority be given under the Act R. S. O. 1887, Cap. 21, Sec. 20, for cheques to issue in favor of the said parties for the amount of their several accounts as hereto attached.

(Sgd) C. F. FRASER,
Commissioner.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, November 26th, 1892.

SIR,—I beg to enclose herewith for the approval of the Treasury Board, a recommendation from the Public Works Department for payments in excess of the capital appropriation for the Institution for Deaf and Dumb, Belleville, amounting to $566.58.

Your obedient servant,
C. H. SPROULE,
Provincial Auditor.

THE CLERK.
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report from the Honorable the Commissioner of Public Works, dated the 23rd day of November, A.D 1892, the Treasury doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O. 1887, recommend that a warrant for the sum of five hundred and sixty-six dollars and fifty-eight cents ($566.58) be issued in favor of the Honorable the Treasurer to enable him to pay the following accounts in connection with the Institution for the Deaf and Dumb, Belleville, the capital appropriation for said Institution having become exhausted :

James Morrison, Toronto	$200 84
Poole & Co., Toronto	310 83
Malcolm Moon, Belleville	46 00
Thomas Hanley, "	8 91
Total	$566 58

Certified,
J. L. CAPREOL,
Clerk, Treasury Board.

The Honorable
THE TREASURER.

Public Buildings—Deaf and Dumb Institute	$1,090 06
Repairs and Maintenance—School Practical Science	872 01

Department of Public Works.
Toronto, November 7th, 1892.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council:

That the capital appropriation for the Institute for Deaf and Dumb, Belleville, is exhausted and the following accounts are unpaid:

J. Forin's certificate	$ 450 00
W. J. Smith's "	104 00
Accounts with abstract as hereunto attached	536 06
Total	$1,090 06

That the School of Practical Science Repairs and Maintenance appropriation also is exhausted and the following amounts are unpaid:

Elias Rogers & Co., as per account now with Auditor	$854 01
Sundry accounts for advertising, " "	18 00
Total	$872 01

The undersigned therefore recommends that authority be given under the Act R. S. O. 1887, Cap. 21, Sec. 20, for cheques to issue in favour of the above-named services for the said sum of $1,090.06, and $872.01 respectively.

(Sgd) C. F. FRASER,
Commissioner.

Provincial Auditor's Office.
Toronto, November 26th, 1892.

Sir,—I beg to enclose for the approval of the Treasury Board, a recommendation from the Public Works Department for payment in excess of appropriations as follows:

Institution for the Deaf and Dumb, Belleville—capital account	$1,090 06
School of Practical Science; Repairs and Maintenance	872 01
Total	$1,962 07

Your obedient servant,
C. H. SPROULE,
Provincial Auditor.

The Clerk,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable, the Commissioner of Public Works, dated the 7th day of November, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O. 1887, recommend that a warrant for the sum of one thousand, nine hundred and sixty-two dollars and seven cents (1,962.07) be issued in favor of the Honorable the Treasurer to enable him to pay certain accounts in connection with the following Institutions, the appropriations for same having become exhausted :

Institution for Deaf and Dumb, Belleville—capital account....	$1,090 06
School of Practical Science—Repairs and Maintenance	872 01
Total.....	$1,962 07

Certified,
J. L. CAPREOL,
Clerk Treasury Board.

The Honorable,
THE TREASURER.

Public Institutions Maintenance—Mimico Asylum $1,693 09

INSPECTOR OF ASYLUM'S OFFICE,
TORONTO, November 24th, 1892.

SIR,—An expenditure for fuel has necessarily been made for supplying the branch cottages at Mimico in excess of the estimated amount for the year.

This expenditure has exhausted the appropriation on maintenance account, leaving a balance in the current monthly accounts of $1,693.09 unprovided for.

Will you be good enough to submit this report to the Treasury Board with a view of obtaining authority for payment of the overdraft.

Your obedient servant,
R. CHRISTIE,
Inspector.

C. H. SPROULE, ESQ.,
Provincial Auditor.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, November 26th, 1892.

SIR,—I beg to enclose herewith for approval of the Treasury Board a recommendation from Mr. Inspector Christie for payment of accounts *re* Mimico Lunatic Asylum.

If overdraft is allowed cheque should issue in favor of Bursar, to enable him to complete payment of accounts incurred for the month ended the 15th instant.

Your obedient servant,
C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of Mr. Christie, Inspector of Asylums, dated the 24th day of November, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O. 1887, recommend that a warrant for the sum of one thousand, six hundred and ninety-three dollars and nine cents ($1,693.09) be issued in favor of James Corcoran, Bursar of Mimico Asylum, to enable him to complete payment of accounts in connection with said Asylum incurred for month ending 15th November, instant, the appropriation for maintenance thereof having become exhausted.

Certified,
J. L. CAPREOL,
Clerk, Treasury Board.

The Honorable,
THE TREASURER.

Education.—School of Practical Science	$700 00
" Superannuated Teachers	237 50

DEPARTMENT OF EDUCATION,
TORONTO, December 6th, 1892.

The undersigned respectively reports to His Honor the Lieutenant-Governor in Council :

That by an evident inadvertence the "Legislative Supply Bill," granting a total of $15,770 for salaries and expenses of School of Practical Science does not include all the items named under this service on page 20

of the estimates, by a difference of $700. As it is necessary that all the salaries of the staff and assistants, as well as the accounts incurred for expenses, should be paid this year, the undersigned respectfully recommends that authority be given, under the Act, 49 Vict,, Cap. 4, Sec. 20, for appropriating a further sum of $700 to supply the deficiency caused by the clerical error aforesaid.

The undersigned also reports that there is a deficiency of $237.50 to meet the claims of the year, under sub-service of "Superannuated Teachers," and he further recommends that the sum of $237.50 be appropriated under the Act above named to pay the claims enumerated in the accompanying schedule.

Respectfully submitted,

(Sgd) R. HARCOURT,

Acting Minister of Education.

Provincial Auditor's Office,
Toronto, December 9th, 1892.

Sir,—I beg to enclose a recommendation from the Education Department for the payment of accounts in excess of appropriations, under the Supply Bill as follows:

Education—School Practical Science	$700 00
" Superannuated Teachers	237 50
Total	$937 50

Your obedient servant,

C. H. SPROULE,

Provincial Auditor.

The Clerk,
Treasury Board.

Minute of the Treasury Board on Matters Referred to them for Consideration.

Upon consideration of a report of the Hon. Mr. Harcourt, Acting Minister of Education, dated the 6th day of December, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O. 1887, recommend that a warrant for the sum of nine hundred and thirty-seven dollars and fifty cents ($937.50) be issued in favor of the

Honorable the Treasurer, to enable him to pay the accounts mentioned in the schedules attached to the Minister's report, the following appropriations to which accounts are chargeable having become exhausted :

Education—School Practical Science	$700 00
" Superannuated Teachers	237 50
Total	$937 50

Certified,
J. L. CAPREOL,
Clerk, Treasury Board.

The Honorable,
THE TREASURER.

Public Buildings.—Deaf and Dumb Institute..... $544 65

DEPARTMENT OF PUBLIC WORKS,
TORONTO, December 10th 1892.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council :

That the Capital Account appropriation for the Deaf and Dumb Institute, Belleville is exhausted, and the following accounts for the reconstruction of bakery and dormitories are unpaid, viz.:—

The E. & C. Gurney Company, Toronto	$15 27
Frank Dolan, Belleville	156 63
John Forin, (final certificate) Belleville	372 75
Total	$544 65

The undersigned therefore recommends that authority be given under the Act R. S. O., 1887, Cap. 21, Sec. 20, for cheques to issue in favor of the said parties for the amounts of their several accounts, as hereto attached.

(Sd) C. F. FRASER,
Commissioner Public Works.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, December 12th, 1892.

SIR,—I beg to enclose herewith for the approval of the Treasury Board, a recommendation from the Department of Public Works, for payment of accounts, in excess of the appropriation for the Deaf and Dumb Institute Capital Account, amounting to $544.65.

Your obedient servant,

(Sd) C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable the Commissioner of Public Works, dated the 10th day of December, A.D. 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21., R. S. O., 1887, recommend that a warrant for the sum of five hundred and forty-four dollars and sixty-five cents ($544.65) be issued in favor of the Honorable, the Treasurer, for the payment of the following accounts in connection with the Deaf and Dumb Institution, Belleville, chargeable to the Capital Account appropriation, for said institution, which has become exhausted.

E. & C. Gurney Company, Toronto	$15 27
Frank Dolan, Belleville	156 63
John Forin, Belleville	372 75
Total	$544 65

Certified,

J. L. CAPREOL,
Clerk Treasury Board.

The Honorable,
THE TREASURER.

Legislation.—Stationery Printing and Binding $2,000 00

QUEEN'S PRINTER'S OFFICE,
TORONTO, December 27th 1892.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council:

That the appropriation for Legislative Printing and Binding has been exhausted. That this is due to the extra amount of printing necessary in connection with the legislation of last session.

The sessional statutes are more than double the usual size; a large special edition of the Consolidated Municipal and Assessment Act was issued, and the Private Bills were unusually numerous.

The undersigned therefore requests that authority be given the Honorable the Provincial Treasurer under the Act R. S. O., 1887, Cap. 21. Sec., 20, to pay to Messrs. Warwick & Sons, the amount named in the accompanying certificate, viz.—$2,000.

(Sd) L. K. CAMERON,
Queen's Printer.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, December 30th 1892.

SIR,—I beg to enclose herewith a recommendation from the Queen's Printer, for payment to Messrs. Warwick & Sons, under authority of 49 Vict., Cap. 4., Sec. 20, of the sum of two thousand dollars, being on account of their contract for printing and binding.

Your obedient servant,
C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable the Treasurer, dated the 27th day of December, A.D., 1892, the Treasury Board doth hereby, under the provisions of Sec. 20, Cap. 21, R. S. O., 1887, authorize the issue of a warrant for the sum of two thousand dollars ($2,000), in favor of Messrs. Warwick & Sons, contractors for the Parliamentary printing, as per certificate of the Clerk of the Committee on printing, the appropriation for "Legislative Printing and Binding" having become exhausted.

Certified,
J. L. CAPREOL,
Clerk Treasury Board.

The Honorable,
THE TREASURER.

Public Institutions Maintenance—Mimico Asylum $4,997 83

Inspector of Asylums' Office
Toronto, 24th December 1892.

Sir,—I beg to report an overdraft, amounting to the sum of $4,997.83 required to pay the outstanding accounts due for the Maintenance of the Branch Asylum cottages at Mimico, for December.

In view of my previous statement as the expenditure for fuel being the cause of the increased amount required, I beg to recommend the issue of a Treasury Board Warrant, under R. S. O., 1887, Cap. 21, Sec. 20, for the above-named amount.

Your obedient servant,

(Sd) R. CHRISTIE.
Inspector.

C. H. Sproule, Esq.,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, December 30th, 1892.

Sir,—I beg to enclose herewith for the approval of the Treasury Board, a recommendation from Mr. Inspector Christie, for payment of accounts in excess of the appropriation for the Maintenance of the Asylum at Mimico, amounting to $4,997.83.

Your obedient servant,

(Sd.) C. H. SPROULE,
Provincial Auditor.

The Clerk,
Treasury Board.

Minute of the Treasury Board on Matters Referred to them for Consideration.

Upon consideration of a report of Mr. Inspector Christie, dated the 24th day of December A. D., 1892, the Treasury Board doth hereby under the provisions of Sec. 20, Cap. 21, R. S. O., 1887, authorize the issue of a war-

rant for the sum of four thousand nine hundred and ninety-seven dollars and eighty-three cents, (4,997.83) in favor of the Honorable the Treasurer, for the payment of outstanding accounts for the month of December, in connection with the Maintenance of the Branch Asylum cottages, Mimico, the appropriation for such service having become exhausted.

Certified,

J. L. CAPREOL,
Clerk, Treasury Board.

The Honorable,
THE TREASURER.

Repairs and Maintenance—Agricultural College..... $733 48

DEPARTMENT OF AGRICULTURE,
TORONTO, December 30th, 1892.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council :

That owing to the increased price of coal, and to the fact that nothing was included in the Estimates to provide for the heating of the new gymnasium at the Ontario Agricultural College, for the months of November and December, the appropriation for "Maintenance" is insufficient, and that outstanding accounts still remain upaid to the amount of $733.48. The undersigned respectfully recommends that authority be given under the Act, 49 Vict. Cap. 4, sec. 20, for appropriating a further sum sufficient to meet the deficiency.

Respectfully submitted,
(Sd) JOHN DRYDEN,
Minister of Agriculture.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, December 31st, 1892.

SIR,—I beg to enclose herewith a recommendation from the Honorable the Minister of Agriculture, for payment of accounts in excess of the appropriation for repairs and Maintenance of buildings, Agricultural College, amounting to $733.48.

Your obedient servant,
C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honourable the Minister of Agriculture, dated the 30th day of December, A.D. 1892, the Treasury Board doth hereby under the provisions of Sec. 20, Cap. 21, R.S.O., 1887, authorize the issue of a warrant for the sum of seven hundred and thirty-three dollars and forty-eight cents ($733.48), in favor of the Honorable the Treasurer, for the payment of outstanding accounts in connection with the Ontario Agricultural College, Guelph, the appropriation for "Maintenance" of said Institution having become exhausted.

Certified,

J. L. CAPREOL,
Clerk Treasury Board.

The Honorable
THE TREASURER.

Repairs and Maintenance—Agricultural College..... $163 69

DEPARTMENT OF AGRICULTURE,

TORONTO, December 30th, 1892.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council:

That the sum appropriated for the Maintenance of Public Buildings at the Ontario Agricultural College is insufficient for the current year; and that as accounts for gas, etc. still remain unpaid to the extent of $163.69, the undersigned respectfully recommends that authority be given under the Act 49 Vict., Cap. 4, Sec. 20, for appropriating a further sum to meet this deficiency.

Respectfully submitted,

(Sd) JOHN DRYDEN,
Minister of Agriculture.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, January 17th, 1893.

SIR,—I beg to enclose herewith an application from the Department of Agriculture for authority for the payment of accounts in excess of the appropriation for "Agricultural College Repairs" account, amounting to $163.69.

The warrant should be made in favor of the Honorable the Provincial Treasurer.

Your obedient servant,

C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable the Minister of Agriculture, dated the 30th day of December, A.D., 1892, the Treasury Board doth hereby under the provisions of Sec. 20, Cap. 21, R.S.O., 1887, recommend that a warrant for the sum of one hundred and sixty-three dollars and sixty-nine cents ($163.69) be issued in favor of the Honorable the Treasurer, to pay accounts for gas, etc., for the Ontario Agricultural College, the appropriation for "Maintenance" of said Institution having become exhausted.

Certified,

J. L. CAPREOL,
Clerk Treasury Board.

The Honorable
THE TREASURER.

Repairs and Maintenance—Government House..... $1,656 43

DEPARTMENT OF PUBLIC WORKS,
TORONTO, 1st January, 1893.

The undersigned respectfully reports to His Honor the Lieutenant-Governor in Council :

That the Government House "Maintenance and Repairs" appropriation for the year 1892 is exhausted, and the following named accounts have not been paid, viz. :

John Catto & Sons	$ 141 80
W. Junor	52 03
Glover Harrison Estate	12 63
Ryrie Bros	58 75
J. E. Ellis & Co. (Ltd.)	511 25
W. Milligan	879 97
Total	$1,656 43

The undersigned therefore recommends that the requisite authority be given under the Act R.S.O., 1887, Cap. 21, Sec. 20, for cheques to issue for the said several parties above-named for the amounts of their respective accounts.

(Sd) C. F. FRASER,
Commissioner Public Works.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, January 18th, 1893.

SIR,—I beg to enclose herewith, for the approval of the Treasury Board, a recommendation from the Department of Public Works for payment of accounts in excess of the appropriation for "Repairs and Maintenance," Government House, amounting to sixteen hundred and fifty-six dollars and forty-three cents ($1,656.43).

Your obedient servant,

C. H. SPROULE,
Provincial Auditor.

THE CLERK,
Treasury Board.

MINUTE OF THE TREASURY BOARD ON MATTERS REFERRED TO THEM FOR CONSIDERATION.

Upon consideration of a report of the Honorable the Commissioner of Public Works, dated the 1st day of January, A.D. 1893, the Treasury Board doth hereby under the provisions of Sec. 20, Cap. 21, R.S.C., 1887, recommend that a warrant for the sum of one thousand six hundred and fifty-six dollars and forty-three cents ($1,656.43) be issued in favor of the Honorable the Treasurer for the payment of the following accounts, chargeable to the appropriation "Repairs and Maintenance," Government House, which has become exhausted.

William Milligan	$ 879 97
J. Catto & Son	141 80
W. Junor	52 03
Glover Harrison Estate	12 63
Ryrie Bros	58 75
J. E. Ellis & Co	511 25
	$1,656 43

Certified,

J. E. CAPREOL,
Clerk Treasury Board.

The Honorable,
THE TREASURER.

Total expenditure under authority of 49 Vic. Cap. 4, Sec. 20 ..... $26,682 29

RECAPITULATION.

Legislation	$7,000 00
Education	7,364 47
Public Institutions Maintenance	6,690 92
Repairs and Maintenance	3,425 61
Public Buildings	2,201 29
	$26,682 29

UNAUTHORIZED EXPENDITURES.

Civil Government:		
Education Department	$ 26 43	
Legislation	997 76	
Administration of Justice:		
Supreme Court of Judicature	1,918 21	
Education:		
Departmental Examinations	55 04	
Normal and Model Schools, Toronto	11 93	
School Practical Science	31 23	
Miscellaneous	501 43	
Repairs and Maintenance:		
Miscellaneous	491 00	
School Practical Science	18 11	
Public Buildings:		
Deaf and Dumb Institute	1,172 56	
School Practical Science	8 97	
Refunds:		
Miscellaneous	16 80	
		$5,249 47
Total overdrafts of appropriations—under Schedule "A" of Supply Bill (*See statement folio 333.*)		$31,931 76

SPECIAL WARRANTS ISSUED UNDER AUTHORITY OF 49 VICT. CAP. 4, SEC. 9, SUB-SEC. 2, TO MEET NECESSARY EXPENDITURES DURING MARCH AND APRIL.

Copy of an Order in Council approved by His Honor the Lieutenant-Governor, the 9th day of February, A.D. 1893.

Having regard to the provisions of sub-section 2 of section 9 of the Revised Statute, chaptered 21, entitled "An Act to provide for the better auditing of the Public Accounts of the Province," whereby it is enacted among other things that when the Legislature is not in session any occasion arises when an expenditure not foreseen or provided for by the Legis-

lature is urgently and immediately required for the public service, then upon the report of the Treasurer that there is no Legislative provision, and of the Minister having the charge of the service in question, that the necessity is urgent, your honor in council may order a special warrant to be prepared for the issue of the amount estimated to be required, which shall be placed by the Treasurer to a special account against which cheques may issue from time to time in the usual form, as they may be required, and upon consideration of the report of the Honorable the Commissioner of Public Works, dated 3rd February, 1893, stating that the New Parliament Buildings, cannot for some weeks to come, be sufficiently completed to allow of there being held therein the approaching annual session of the Legislative Assembly of the Province, and in order to allow of the said session being so held in said buildings, it is urgently and immediately necessary that the sum of fifty-five thousand dollars ($55,000) should be provided for the furnishing and fitting up of the same, also the report of the Honorable the Provincial Secretary of 3rd idem, wherein he states that the sum of one hundred and forty thousand dollars ($140,000) is required for supplies for the Maintenance of the Public Institutions of the Province, and also the report of the Honorable the Treasurer of the same date, representing that the sum of thirty-five thousand dollars is required for departmental pay lists, and twenty thousand dollars for the purposes of legislation, and setting forth further that in the absence of any legislative provision for the sums necessary to meet said services (the necessity for payment being urgent) and in pursuance of the said sub-section of the said Act a special warrant should be prepared and signed by Your Honor authorizing the issue and appropriation out of the Consolidated Revenue Fund of the sum of two hundred and fifty thousand dollars ($250,000) to be placed by the Treasurer to a Special Account, the Committee of Council advise that a special warrant for the said sum of two hundred and fifty thousand dollars be issued by Your Honor to be placed by the Treasurer to a Special Account, against which cheques may be issued from time to time, as may required, for the payment of expenditures in connection with the services above specified.

Certified,

J. LONSDALE CAPREOL.

Assistant Clerk Executive Council.

Copy of Order in Council approved by His Honor the Lieutenant-Governor the 15th day of March, A.D. 1893.

Referring to the Order in Council of 9th February, 1893, authorizing the issue of a special warrant for the sum of two hundred and fifty thousand dollars ($250,000) on account of the Maintenance of Public Institutions

of the Province, Civil Government, Legislation and Parliament Buildings, and upon consideration of the reports of the Honorable the Minister of Education, the Honorable the Provincial Secretary, and the Honorable the Minister of Agriculture, dated respectively 14th March, 1893; also the report of the Honorable the Treasurer wherein he states that the said special warrant has been exhausted, and that a further sum of two hundred thousand dollars ($200,000) is urgently and immediately required to meet the following necessary expenditures, namely :—

Regular Departmental pay lists (average monthly)	$35,000
Public Institutions, Ordinary Maintenance, (accounts average)	70,000
Legislation, advance *re* Sessional expenses	20,000
Administration of Justice, sundry necessary expenditures	10,000
Education, sundry necessary expenditures	10,000
Agriculture " "	10,000
Miscellaneous Services, sundry necessary expenditures	45,000

The Committee of Council advise that in pursuance of sub-section 2 of section 9, cap. 21, R.S.O., a further special warrant for the said sum of two hundred thousand dollars be issued in favor of the Honorable the Treasurer, to be placed by him to a Special Account, against which cheques may be issued from time to time in the usual form as they are required to meet the necessary payments aforesaid.

Certified,

J. LONSDALE CAPREOL,
Assistant Clerk Executive Council.

Statements of the expenditure under above warrants will be prepared and presented early in the approaching Session.

Respectfully submitted,

C. H. SPROULE,
Provincial Auditor.

CONTENTS.

MISCELLANEOUS STATEMENTS.

	Page.		Page.
Receipts and Payments	2	Law Stamp Revenue	12
Balance of Open Accounts	6	Education Department Revenue	13
Consolidated Revenue Fund	9	Algoma Taxes Revenue	14
Investment Account	10	Casual Revenue	17
Interest on Investments	11	Stationery Office	19

EXPENDITURE STATEMENTS.

Administration of Justice:	Page.	Agriculture:	Page.
Supreme Court of Judicature	55	Electoral Division Societies	208
Court of Appeal	56	Grants to Associations	211
High Court	57	Agricultural College	218
Chancery Division	57	Experimental Farm	222
Queen's Bench Division	58	Incidentals	215
Common Pleas Division	59	Farmers' Institutes	212
Surrogate Judges and Local Masters	59	Bureau of Statistics	217
Crown Counsel Prosecutions	60	Forestry	216
General Administration of Justice in Counties	63	Tree Planting	216
Special Services	71		
Deputy Clerks of the Crown and Pleas	75	Annuities	320
Local Registrars	77		
District of Algoma	79	Civil Government:	
do Thunder Bay	80	Government House	23
do Rainy River	80	Lieutenant-Governor's Office	23
do Nipissing	81	Attorney-General's Department	24
do Parry Sound	81	Education do	25
do Muskoka	81	Crown Lands do	27
do Manitoulin	82	Bureau of Mines	31
do Haliburton	82	Public Works Department	32
Provincial Police	82	Treasury do	33
Sheriffs' Fees, etc	72	Provincial Auditor's Office	35
Seals and other contingencies	74	Department of Agriculture	40
Inspection, Division Courts	71	Secretary and Registrar's Department	37
do Offices under Judicature Act	71	Registrar-General's Branch	42
Shorthand Reporters	75	License do	36
Constitutional Questions	74	Public Institutions Office	39
Grouped Counties	75	Immigration do	43
Land Titles Office	77	Official *Gazette*	45
Local Masters of Titles	78	Queen's Printer	45
Dit hes and Water Courses Act	75	Board of Health	44
County Law Associations	75	Insurance Branch	46
Drainage Act	78	Inspection of Registry Offices	46
		Special Services *re* Investigations	47

PAGE.

COLONIZATION ROADS 283

CROWN LANDS:

- Board of Surveyors 289
- Agents' Salaries 289
- Forest Ranging 291
- Fire Ranging 292
- Cullers' Act 295
- Quebec Agency 296
- Ottawa do 296
- Forest Ranging in New Territory .. 275
- Surveys 296
- Miscellaneous 297

DRAINAGE DEBENTURES (Municipal) 320

DRAINAGE, TILE 321

EDUCATION:

- Public Schools 84
- Separate do 96
- Poor do 102
- Kindergarten Schools 110
- Night do 111
- P. S. Leaving Examinations 111
- Model Schools 115
- Teachers' Institutes 117
- Inspection, Public and Separate Schools 121
- High Schools 112
- Training District Teachers 117
- French-English Training School .. 117
- Ontario School of Pedagogy 119
- Inspection of Normal, High and Model Schools 121
- Departmental Examinations 124
- Normal and Model Schools, Toronto 130
- do Ottawa 132
- Library 133
- School of Practical Science 135
- Mechanics' Institutes 137
- Art Schools Examinations, etc 143
- Literary and Scientific 144
- Superannuated Teachers 145
- Miscellaneous 145

HOSPITALS AND CHARITIES 234

IMMIGRATION:

- Agencies in Europe 207
- do Ontario 207
- Incidentals 207

LAND IMPROVEMENT FUND (Special) 321

LEGISLATION:

- Official Salaries 47
- Sessional Writers, Messengers, Pages, etc 48

PAGE.

LEGISLATION—*Continued.*

- Postages and Cost of House Post Office 51
- Stationery, Printing and Binding .. 51
- Printing Bills and Distributing Statutes 51
- Library 51
- Indemnity to Members 53
- Expenses 53

MISCELLANEOUS:

- Charges on Revenue 304
- Marriage Licenses 305
- Ontario Rifle Association 305
- Artillery Association 305
- Expenses of Elections 305
- Voters' Lists 306
- Gratuities 307
- Industrial School, Mimico 305
- Archæological Researches 307
- Telephone Service 307
- Removal of Patients 307
- Prisoners' Aid Society 308
- Vaccine Farm 309
- Sanitary Investigations 308
- Outbreak of Epidemics 309
- University College (Ladies' Department) 295
- Factories' Act 296
- Drainage Commission 310
- Arbitration Canada and Quebec 309
- Dominion Teachers' Association ... 311
- Canadian Military Institute 311
- Columbia Exhibition 311
- Removal to New Parliament Buildings 313
- Fish and Game Wardens 314
- Costs Sharpe *v.* Lakefield Lumber Co. 315
- Destruction of Wolves 315
- Centenary Celebration 315
- Dehorning Commission 315
- Imperial Institute Exhibit 310
- Unprovided Items 316

NEW PARLIAMENT BUILDINGS 322

PUBLIC INSTITUTIONS MAINTENANCE:

- Asylum for the Insane, Toronto 146
- do Mimico 151
- do London 156
- do Kingston 163
- do Hamilton .. 168
- do Idiots, Orillia 173
- Central Prison 178
- Central Prison Industries 182
- Reformatory for Boys 185
- Institution for the Deaf and Dumb. 190
- do Blind 195
- Mercer Reformatory 202

PAGE.

PUBLIC BUILDINGS:

Asylum for Insane, Toronto 254
do do Mimico 255
do Eastern Ontario..... 257
do Insane, London 258
do do Kingston 260
do do Hamilton 259
do Idiots, Orillia 261
Reformatory for Boys 262
Mercer Reformatory 263
Central Prison..... 263
Institution for the Deaf and Dumb 265
do Blind..... 267
Agricultural College..... 267
Education Dept. and Normal School 269
Normal School, Ottawa..... 270
School of Practical Science..... 270
Osgoode Hall..... 272
District of Algoma 273
do Thunder Bay... 274
do Rainy River..... 275
do Muskoka..... 274
do Parry Sound 275
do Nipissing 275

PUBLIC WORKS:

Maganetawan Works 276
Peninsula Creek Improvement 277
Balsam River Works..... 278
Mississiquia Lake Dam 278
Gull and Burnt River Works..... 278

PAGE.

PUBLIC WORKS—*Continued.*

Landing Pier, Port Elgin 279
Nation River Improvement 279
Maintenance, Locks, Dams, etc.... 279
Surveys, Inspections, etc..... 282
Lockmasters' Salaries 279

REFUNDS:

Education 298
Crown Lands..... 298
Municipalities Fund..... 303
Land Improvement Fund 303
Miscellaneous 304

RAILWAY SUBSIDY FUND..... 317

REPAIRS AND MAINTENANCE, GOVERNMENT DEPARTMENTAL BUILDINGS.

Government House 238
Parliament Buildings 239
Educational Buildings 242
Simcoe Street Premises 245
Wellington Street Premises 246
Miscellaneous 247
Normal School, Ottawa 247
School of Practical Science.... ... 248
Agricultural College..... 249
Osgoode Hall..... 251
Agricultural Hall 251

UNIVERSITY OF TORONTO 321

MISCELLANEOUS STATEMENTS.

No. 1.

RECEIPTS AND EXPENDITURES.

BALANCE SHEET, Shewing the RECEIPTS and PAYMENTS of the Treasurer of Ontario during the Year 1892, with the Cash Balances on 1st January and 31st December.

RECEIPTS.	$ c.	$ c.	$ c.	PAYMENTS.	$ c	$ c.	$ c.
To Balance from Public Accounts 1891			19,818 00				
CONSOLIDATED REVENUE FUND.				CONSOLIDATED REVENUE FUND.			
From Dominion of Canada :							
" Subsidy	1,116,872 80						
" Special Grant	80,000 00			For Civil Government		235,760 61	
		1,196,872 80		" Legislation		132,597 76	
" Interest on capital held, and debts due by the Dominion to Ontario	300,000 00			" Administration of Justice		391,689 80	
				" Education		653,161 46	
" Interest on investments	36,739 31			" Public Institutions Maintenance		818,435 77	
		336,739 31		" Immigration		8,334 86	
" Crown Lands Department :				" Agriculture		167,282 14	
Crown Lands	32,159 38			" Hospitals and Charities		151,574 67	
Railway Lands	1,627 92			" Repairs and Maintenance, Public Buildings		61,133 92	
Grammar School Lands	1,117 20			" Locks, Dams, etc		13,190 77	
Rent *re* Lands	18,700 75			" Surveys, Inspections, etc		228 98	
Woods and Forests	2,174,591 38			" Colonization Roads		103,655 39	
Board of Surveyors	133 50			" Charges on Crown Lands		131,863 80	
Cullers' Fees	716 25						
Casual Fees	542 72						
" Refunds :				" Refunds, *re* Crown Lands	17,492 64		
Surveys	1,010 35			" Education	786 86		
Fire Ranging	5,919 19			" Miscellaneous	16 80		
Agents' Salaries	303 10					18,296 30	
		2,236,821 74		" Miscellaneous		117,815 98	
							3,005,022 21

From Licenses		294,757 98	
" Law Stamps		91,617 56	
" Algoma Taxes		4,172 55	
" Education Department		47,949 68	
" Casual Revenue		70,257 03	
" Sale of Lands at Toronto Asylum		2,266 20	
" Public Institutions :			
Toronto Lunatic Asylum	37,887 65		
London "	16,941 87		
Hamilton "	14,946 06		
Kingston "	4,264 31		
Orillia "	2,955 52		
Reformatory for Females	2,484 99		
" Boys	717 50		
Central Prison	56,033 54		
Deaf and Dumb Institute	75 00		
Institution for the Blind	100 00		
		136,406 44	
			4,417,861 29
OPEN ACCOUNTS.			
From Crown Lands Department :			
Clergy Lands	4,571 52		
Common School Lands	11,579 01		
		16,150 53	
" Public Works and Buildings, *re* Capital Account :			
Mimico Farm	1,644 00		
Mercer Reformatory	1,744 36		
Blind Institution	694 77		
		4,083 13	
" Sale of Lands, *re* New Parliament Buildings Fund		6,472 87	
" Drainage Works, rent charges		12,910 45	
" Drainage Debentures	39,682 09		
" Drainage Debentures, Tile	5,755 00		
		45,437 09	
			85,054 07
Sale of Annuities			160,006 21
Carried forward			4,682,739 57

OPEN ACCOUNTS.			
For Asylum for Insane, Toronto		10,682 09	
" " " Mimico		57,977 63	
" " " Brockville		20,438 58	
" " " London		31,904 30	
" " " Hamilton		39,839 03	
" " " Kingston		20,656 15	
" " " Orillia		3,584 06	
" Reformatory for Boys, Penetang		6,196 36	
" " Females, Toronto		3,018 83	
" Central Prison, Toronto		46,915 45	
" Deaf and Dumb Institute, Belleville		16,953 85	
" Blind Institute, Brantford		10,479 73	
" Agricultural College, Guelph		27,156 76	
" Normal School, Toronto		7,173 50	
" " Ottawa		22,496 14	
" School of Practical Science, Toronto		10,808 97	
" Osgoode Hall		275 80	
" Government House		673 98	
" New Parliament Buildings. (See Statement No. 13.)		44,770 65	
" District of Algoma :			
Lock-up, Gore Bay	160 24		
Court-house, etc., Sault Ste. Marie	63 00		
		223 24	
" District of Thunder Bay :			
Court-house, etc., Port Arthur	140 69		
Lock-up, Fort William	20 00		
		160 69	
" District of Muskoka :			
Lock-up, etc., Bracebridge	1,869 18		
" and Court-room Huntsville	403 80		
		2,272 98	
Carried forward		384,658 77	3,005,022 21

No. 1.—Balance Sheet, Shewing the Receipts and Payments of the Treasurer of Ontario during the Year 1892, with the Cash Balances on 1st January and 31st December.—*Concluded.*

RECEIPTS.	$ c.	$ c.	$ c.	PAYMENTS.	$ c.	$ c.	$ c.
Brought forward			4,682,739 57	*Brought forward*		384,658 77	3,005,022 21
				For District of Parry Sound:			
				Lock-up, Maganetawan	14 16		
				Registry Office, Parry Sound	102 86		
				Lock-up, Burk's Falls	499 76		
				" French River	1,098 77		
						1,715 55	
				For District of Rainy River:			
				Lock-up and Court-room, Rat Portage	239 04		
				Lock-up, Fort Francis	1,964 18		
						2,203 22	
				For District of Nipissing:			
				Lock-up and Court-room, North Bay	307 30		
				Lock-up, Sudbury	5,084 30		
						5,391 60	
				For New Parliament Buildings. (See Statement No. 12)		323,212 17	
				" Maganetawan Works		2,814 41	
				" Gull and Burnt River Works		500 31	
				" Peninsula Creek Improvement		348 22	

				For Balsalm River Works			992 16	
				" Landing Pier, Port Elgin			750 00	
				" Nation River Improvement			3,000 00	
				" Refunds *re* Land Improvement Fund			2,155 89	
				" Refunds *re* Municipalities Fund (Widows' Pensions)			1,459 92	
				" Aid to Railways			158,189 58	
				" Annuities			70,200 00	
				" University of Toronto			60,000 00	
				" Land Improvement, special			2,049 74	
				" Drainage Debentures, Municipal	33,193 64			
				" " Tile	10,400 00			
							43,593,64	
								1,063,235 18
				" Investments, Special Deposits as per Statement No. 4				550,000 00
				" Stationery Account, excess of purchases over distribution				694 29
				Balance (See Statement No. 2)				63,787 89
Total			4,682,739 57	Total				4,682,739 57

Provincial Auditor's Office,
Toronto, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 2.

OPEN ACCOUNTS.—Statement of the Balance of Open Accounts, December 31st, 1892.

——	$ c.	$ c.	——	$ c.
Current Balances, Bank of Commerce	13,246 86		Consolidated Fund	10,450,227 68
do Bank of Hamilton	7,149 07		Municipal Loan Fund	1,659,125 85
do Imperial Bank	5,859 44		Common School Fund	1,003,443 97
do Ontario Bank	9,769 16		Municipalities Fund	14,490 99
do Standard Bank	9,871 52		Railway Fund	400,162 35
do Traders' Bank	17,327 29		Annuities	1,039,919 06
do Dominion Bank	728 44		Dominion of Canada, Open Account	500,000 00
do Federal Bank	73 61			
do Central Bank	98			
	64,026 37			
do Overdrawn, Consolidated Bank $ 95 85				
do do Bank of Montreal 142 63	238 48			
		63,787 89		
Special Deposits, Bank of Commerce	150,000 00			
do Ontario Bank	150,000 00			
do Imperial Bank	100,000 00			
do Standard Bank	50,000 00			
do Bank of Hamilton	50,000 00			
do Union Bank	50,000 00			
		550,000 00		
Dominion of Canada, 6 per cent. Bonds		200,000 00		
Dominion of Canada		72,717 76		
Toronto General Hospital		4,000 00		
Railway Subsidy Fund, 35 and 37 Victoria		592,570 25		
Railway Aid Fund, 39 Victoria		527,508 62		
do 41 do		136,635 56		
do 44 do		208,462 16		
do 52 and 53 Victoria		31,662 34		
Railway Land Account, 40 Victoria		816,991 11		
Surplus Distribution		3,388,777 47		

Drainage Assessment Fund		167,321 37
Drainage Debentures		230,755 15
Tile Drainage Debentures		98,203 96
Stationery Account		31,404 96
Parliament Buildings		107,306 49
New Parliament Buildings		1,027,295 60
Agricultural Farm, Mimico		27,648 85
Agricultural Hall		324 00
Agricultural College, Guelph		386,834 96
Government House		171,951 57
Osgoode Hall		104,049 12
Central Prison		705,156 84
Andrew Mercer Reformatory		109,766 06
Reformatory for Boys		160,677 58
Institution for Deaf and Dumb		274,921 18
do the Blind		253,813 29
Asylum for the Insane, London		804,611 51
do Hamilton		752,921 24
do Kingston		372,290 25
do Orillia		481,758 29
do Toronto		319,739 14
do Mimico (branch)		517,864 51
do Brockville		20,438 58
School of Practicial Science		212,038 26
Normal School, Toronto		137,981 84
do Ottawa		197,566 92
Otonabee River Works		7,266 66
Scugog River Works		87,962 05
Gull and Burnt River Works		73,464 75
Muskoka River Works		65,346 39
Peninsula Creek Works		25,437 08
Balsam and Cameron Lakes Works		40,544 13
Georgian Bay Works		5,085 37
Nation River Works		13,877 23
Mississiqua River Works		4,989 84
Kushog Lake Dam		300 00
River Beaudette Works		3,000 00
Lake of Bays Works		581 82
Mississippi River Works		2,877 39
Head River Works		976 82
Lake Scugog Flats Road		1,500 00
Registry Office and Lock-up, Thunder Bay		21,810 75
do Bracebridge		3,485 54
do North Bay		18,659 48
do Algoma		15,336 42
do Parry Sound		17,324 80
Court-house and Gaol, Algoma		24,369 27
Lock-up, Bruce Mines		5,409 82
do Gore Bay		7,380 42
Carried forward		14,714,740 71

Carried forward	15,067,369 90

No. 2.—Statement of Balance of Open Accounts.—*Concluded.*

——	$ c.	$ c.	——	$ c.
Brought forward		14,714,740 71	*Brouyht forward*	15,067,369 90
Lock-up, Huntsville		2,963 80		
do Mattawa		733 47		
do Sudbury		8,477 73		
do Fort William		6,817 48		
do Maganetawan		645 56		
do French River		1,098 77		
do Killarney		1,292 97		
do Burk's Falls		6,121 37		
do Little Current		20 55		
do Thessalon		1,160 24		
do Manitowaning		165 70		
do Fort Francis		2,078 68		
Court-room and Lock-up, Rat Portage		22,988 80		
Registry Office, Minden		250 85		
Registry Office, Gaol and Lock-up, Port Arthur		15,264 88		
Shelter and Buildings, Brock's Monument		1,591 92		
Grant to Provincial University		160,000 00		
Lock at Young's Point		300 00		
do Mary's and Fairy Lakes		63,616 07		
do Maganetawan		55,290 35		
Southampton Pier		1,000 00		
Port Elgin Pier		750 00		
Total		15,067,369 90	Total	15,067,369 90

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, March 10th, 1893.

No 3.

STATEMENT OF THE CONSOLIDATED REVENUE FUND, including items transferred to it, 31st December, 1892.

	$ c.	$ c.		$ c.	$ c.
To Expenditure as per Statement No. 1	3,005,022 21		By Balance as per Statement No. 3, 1891	9,040,679 93	
" Land Improvement Fund	4,205 63		" Receipts as per Statement No. 1	4,417,861 29	
		3,009,227 84			13,458,541 22
To Balance		10,450,227 68	*By Municipalities Fund :—*		
			Twenty per cent. on amount collected during the year for cost of management		914 30
		13,459,455 52			13,459,455 52

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 4.

INVESTMENT ACCOUNT.

TO WHOM PAID.	NATURE OF INVESTMENT.	Amount.	Amount.	Amount.	Total.
		$ c.	$ c.	$ c.	$ c.
Bank of Commerce	Special deposits made during 1892	250,000 00			
Ontario Bank	do	300,000 00			
Imperial Bank	do	225,000 00			
Standard Bank	do	125,000 00			
Bank of Hamilton	do	125,000 00			
Traders' Bank	do	50,000 00			
Union Bank	do	75,994 08			
			1,150,994 08		
	Less amounts withdrawn to meet current expenditure, viz:				
	Bank of Commerce	100,000 00			
	Ontario Bank	150,000 00			
	Imperial Bank	125,000 00			
	Standard Bank	75,000 00			
	Bank of Hamilton	75,000 00			
	Trader's Bank	50,000 00			
	Union Bank	25,994 08			
			600,994 08		
				550,000 00	
	Interest bearing securities held by the Province on 31st December, 1892, exclusive of Trust Funds in the hands of the Dominion Government:				
	Dominion of Canada 6 per cent. bonds, par value			200,000 00	
	Drainage Loans			167,321 37	
	Drainage Debentures			230,755 15	
	Tile Drainage Debentures			98,203 96	
					1,246,280 48

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 5.

INTEREST ACCOUNT.

STATEMENT OF INTEREST RECEIVED DURING THE YEAR ENDED 31ST DECEMBER, 1892.

FROM WHOM RECEIVED.	NATURE OF INVESTMENTS.	Amount.	Total.
		$ c.	$ c.
Hon. Minister of Finance, Ottawa	Interest on capital held and debts due to the Province by the Dominion	300,000 00	
do	Twelve months' dividend on $200,000 6 per cent. bonds to 30th September	12,000 00	
Sundry Municipalities	Interest on Dundas and Waterloo Road Debentures	153 50	
do	do Drainage Debentures and Loans	16,947 13	
Kennedy & Son	do Duplicate payment made in error	79 20	
Bank of Commerce	Net Interest on Deposits to 31st December $ 648 60		
Ontario Bank	do do 1,552 85		
Imperial Bank	do do 1,611 36		
Standard Bank	do do 993 84		
Bank of Hamilton	do do 969 22		
Traders' Bank	do do 747 95		
Union Bank	do do 1,174 64		
		7,698 46	
		336,878 29	
	Less refund of overpaid interest to Township of Ellice $ 113 89		
	do do Ramsay 25 09		
		138 98	
			336,739 31

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 6.

LAW STAMPS.

STATEMENT of Revenue received on account of Law Stamps during the year ended 31st December, 1892.

COUNTY.	DISTRIBUTOR.	Amount.
		$ c.
Brant	G. R. VanNorman	2,013 25
Bruce	Thomas Dixon	1,491 50
Carleton	Robert Lees	5,662 95
Dufferin	Thomas Bowles	380 00
Elgin	John Farley	1,607 70
Essex	F. E. Marcon	1,045 00
Frontenac	B. M. Britton	1,805 00
Grey	A. Frost	826 50
Haldimand	J. R. Martin	289 75
Halton	T. G. Matheson	214 70
Hastings	G. E. Henderson	2,860 00
Huron	D. McDonald	2,546 00
Kent	Jas. Holmes	2,042 50
Lambton	J. P. Bucke	812 25
Lanark	C. Rice	621 30
Leeds and Grenville	S. Reynolds	1,159 00
Lincoln	J. McKeown	1,111 50
Lennox and Addington	A. L. Morden	855 00
Middlesex	C. Hutchinson	3,600 50
Norfolk	C. C. Rapelje	452 25
Northumberland and Durham	J. W. Kerr	1,914 25
Ontario	J. E. Farewell	1,068 75
Oxford	F. R. Ball	810 00
Peel	W. H. McFadden	1,520 00
Perth	J. Idington	1,404 10
Peterborough	R. E. Wood	617 50
Prescott and Russell	J. Fraser	95 00
Prince Edward	P. Low	472 15
do	J. R. Brown	47 50
Renfrew	J. H. Metcalfe	698 50
Simcoe	J. R. Cotter	1,720 45
Stormont, Dundas and Glengarry	J. Dingwall	1,140 00
Victoria	J. R. McNeillie	1,235 02
Waterloo	W. H. Bowlby	1,900 00
Welland	L. D. Raymond	190 00
do	T. D. Cowper	594 95
Wellington	H. W. Peterson	333 25
Wentworth	John Crerar	3,676 50
Toronto City	J. G Brown	3,291 75
do	James Fleming	556 70
York	W. W. Baldwin	37,000 00
Algoma District	J. J. Kehoe	142 50
Muskoka do	I. Huber	45 00
Parry Sound District	R. H. Stewart	49 50
Thunder Bay do	A. R. Lewis	297 54
Total		$91,617 56

C. H. SPROULE,
Provincial Auditor.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

No 7.

EDUCATION REVENUE.

STATEMENT of the Receipts of the Education Department during 1892.

SERVICE.	PARTICULARS.	Amount.	Total.
		$ c.	$ c.
Normal and Model Schools, Toronto	Fees from Normal, Model and Kindergarten students and pupils	11,230 00	
do do Ottawa	do do do do	7,786 00	
			19,016 00
Departmental examinations	Examination fees and appeals		21,622 12
School of Pedagogy	Fees from students		1,630 00
Superannuated teachers	Subscriptions, 1892		1,313 50
Miscellaneous	Sales of museum catalogues, waste paper, School Acts, duplicate certificates, etc		405 06
School of Science	Students' Fees		3,963 00
Total			$47,949 68

C. H. SPROULE,
Provincial Auditor.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

No. 8.

TAXES ON PATENTED LANDS.

STATEMENT shewing the several amounts received by the Treasurer of Ontario on account of Taxes on Patented Lands in the District of Algoma, for the year ended 31st December, 1892.

FROM WHOM RECEIVED.	SERVICE.	$ c.	$ c.
Aikins, J. C.	On account of taxes	14 78	
Allison, D. W.	do	109 87	
Allan, W. A.	do	26 29	
Armstrong, W.	do	6 84	
Algoma Nickel Co.	do	5 31	
Allison, Mrs.	do	1 38	
Austin, W. A.	do	1 90	
Ball, H. G.	do	11 56	
Bliss, A. P.	do	5 76	
Brown, J. C.	do	3 98	
Barnet & Russell	do	22 67	
Banks, W. H.	do	8 30	
Bowling, S. J.	do	1 60	
Bruce, A. C.	do	16 05	
Bradley, A. W.	do	4 52	
Birswanger, H. P.	do	1 60	
Beaver M. & M. Co.	do	26 21	
Brewster, C. E.	do	1 59	
Birch, R.	do	2 10	
Bevan, S. L.	do	4 79	
Beatty & Co.	do	134 40	
Ballentine, S. L.	do	56 33	
Bowden, J.	do	92 03	
Crompton F.	do	4 22	
Canadian Copper Co.	do	171 74	
C. P. R. Co.	do	110 17	
Clemow, F.	do	1 76	
Campbell, C.	do	3 52	
Crombie, D. B.	do	13 92	
Crawford, Sir C.	do	4 80	
Cassels, C.	do	4 81	
Cockburn, Mrs.	do	76	
Candler Bros.	do	3 08	
Cochrane, J. C. T.	do	5 61	
Crane & Baird	do	32 53	
Collins' Inlet L. Co.	do	2 00	
Crean, F. C.	do	72	
Clougher, T. R.	do	12 62	
Cook Bros. L. Co.	do	15 21	
Denison M. Co.	do	13 84	
Davidson, J.	do	16 96	
Downs, N. C.	do	1 61	
Duncan, Clarke S. C.	do	4 74	
Dunstan, G.	do	15 96	
Dawson, J. P.	do	58 73	
Deschamps, P.	do	1 32	
Delamere & Co.	do	6 21	
Delaney, T.	do	15 66	
Daniels, J. C.	do	4 00	
De Graff, J. H.	do	6 01	
Davies, T.	do	17 49	
Easterbrook, T.	do	2 00	
Eschweiler, C. F.	do	8 69	
Eyre, E. H.	do	3 95	
Ebner, A.	do	6 72	
Elgin L. M. Co.	do	7 52	
Ellis, Mrs.	do	14	
Frood, T.	do	26 22	
	Carried forward	1,165 10	

No. 8.

TAXES ON PATENTED LANDS.—*Continued.*

FROM WHOM RECEIVED.	SERVICE.	$ c.	$ c.
	Brought forward	1,165 10	
Fraser, J.	On account of taxes	1 65	
Fraser, J. A.	do	3 70	
Fabian, W. J.	do	9 55	
Frause, W. J.	do	47 34	
Felt, B. F.	do	3 00	
Ferguson & Brian	do	6 09	
Flett & Co.	do	18 92	
Graham, G. A.	do	67 67	
Gamble & Dunn	do	5 76	
Gurafski, D.	do	57	
Geehell, M. T.	do	1 84	
Gilbert, G. K.	do	18 77	
Griffiths, S.	do	3 20	
Gordon, A.	do	3 74	
Goodell, R. P.	do	1 76	
Graham & Co.	do	2 10	
Graves, C. H.	do	6 18	
Grant, J. G.	do	4 75	
Hunter, W. H.	do	5 42	
Harvey, J.	do	2 81	
Holmes & Gregory	do	24 28	
Heron, R.	do	4 54	
Hunter, J. C.	do	20 55	
Hamilton, C. H.	do	1 65	
Harman, G. F.	do	42	
Harkley, R.	do	60	
Hedstrom, E. L.	do	2 26	
Harris, T. L.	do	66	
Higginson & Co.	do	111 19	
Hartman, O. C.	do	2 64	
Hardisty, J.	do	14 88	
Ince, T. H.	do	6 76	
Jonson, William	do	3 36	
Jones, A. E.	do	17 01	
Jackson, D. jr.	do	6 94	
Krause, C. H.	do	5 62	
Krause, H. C.	do	2 58	
Kaiser, S. P.	do	14 49	
Kerr, J. L.	do	1 47	
Keith, G. E.	do	3 12	
Long, T.	do	5 45	
Lendreville, J.	do	3 25	
Lailey Estate	do	7 47	
Lesslie, J.	do	1 60	
Lesslie, W.	do	5 22	
Lye, H.	do	24 83	
Lockerby, D. L.	do	7 59	
Lewis & Langworthy	do	117 42	
Mercer & Co.	do	8 49	
Mutchmore & Co.	do	3 69	
Machin, Rev. C. J.	do	14 29	
Mickle, H. W.	do	2 81	
Messer, A.	do	80	
Mingaye, W. R.	do	23 21	
Moss & Co.	do	5 42	
Martin, R.	do	3 49	
McCharles, A.	do	8 87	
McLaren, P.	do	6 12	
McArthur, J.	do	1 10	
McCuaig, C. J.	do	8 42	
McIntosh, H. P.	do	8 61	
McPherson, W. D.	do	8 76	
McDonald, J. C.	do	1 47	
	Carried forward	1,903 32	

No. 8.

TAXES ON PATENTED LANDS.—*Concluded.*

FROM WHOM RECEIVED.	SERVICE.	$ c.	$ c.
	Brought forward	1,903 32	
McGee, J. C	On account of taxes	26 92	
McCuaig & Co	do	7 66	
McArthur Bros	do	120 20	
McRae, P.	do	3 17	
Nairn, T. B	do	11 25	
Newmann, M	do	5 58	
Nason, W. Estate	do	20 11	
Newman, F	do	7 41	
Nesbitt, E. R	do	3 68	
Nason, J	do	20 11	
O'Reilly, J. E	do	4 83	
Pack, G	do	1 07	
Palmer, J. C	do	5 27	
Peden, W	do	1 06	
Pardee & Garvey	do	29 66	
Paine, F. W	do	5 81	
Petrie, A. M	do	1 47	
Platt, J. M	do	5 89	
Phillips, T. C	do	1 95	
Parsons, J	do	3 70	
Pickards, H. L	do	14 67	
Perkins & Fraser	do	2 68	
Petry, W. G	do	53 08	
Platt, S	do	15 10	
Pack & Woods	do	5 95	
Parkhurst, A. G	do	74	
Quigley, M	do	96	
Quinn, J. J	do	3 20	
Roberts, D. E	do	2 65	
Reeves, S. T	do	246 36	
Rogers, F	do	33 01	
Ramsden, F. J	do	5 25	
Smith, Goldwin	do	1 60	
Saltonstall, F. G	do	9 67	
Secord, H. C	do	23 68	
Shaw, G. A	do	27 73	
Schilling, E	do	1 60	
Thomson, D. C	do	23 44	
Thomson, Rev. C. E	do	1 91	
Turner, H. A	do	3 12	
Teeple A. V	do	1 84	
Thurston, C. B	do	3 36	
Turner, William	do	1,303 23	
VanSickle, J. F	do	3 70	
Vickers, J. J	do	23 68	
Walsh, M	do	7 57	
White, J. L	do	1 10	
Wideman, J	do	1 15	
Wieland, F. W	do	1 66	
Waterloo, A. C	do	35 18	
Ware, G. T	do	5 38	
Wink & Cameron	do	7 68	
Wiley, A. W	do	7 88	
Williams, J	do	2 81	
Walton, A. M	do	14 82	
Young, A. H	do	3 12	
Y. 1 Mining Co	do	6 87	
Deeds	do	75 00	
Total			4,172 55

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 9.

CASUAL REVENUE.

STATEMENT of CASUAL REVENUE, received by the Treasurer of the Province of Ontario during the year ended 31st December, 1892.

FROM WHOM RECEIVED.	SERVICE.	$ c.	$ c.
Provincial Secretary's Department	49 Commissions under Great Seal @ $13 00	637 00	
	70 do Notaries Public, @ 8 00	560 00	
	90 Judicial Notarial Certificates, @ 1 00	90 00	
	6 Passports, @ 1 00	6 00	
	1 Subpœna	1 00	
	13 Surrogate Court Certificates, @ 2 00	26 00	
	3 County do @ 2 50	7 50	
	14 Superior do @ 4 00	56 00	
	4 Declarations, @ 5 00	20 00	
	2 Land Grants, @ 20 00	40 00	
	7 Orders in-Council, @ 12 00	84 00	
	1 Change of name	12 00	
	Searches, etc	34 40	
	Charters of Incorporation	6,780 00	
	Marriage Licenses	2,853 60	
			11,207 50
Provincial Registrar's office..	4 Exemplifications of Patents, @ 8 25	33 00	
	35 Certified copies of do @ 2 50	87 50	
	4 Certificates do @ 50	2 00	
	122 Searches and extracts, @ 25	30 50	
	9 Special copies, @ 2 50	22 50	
			175 50
Registrar-General's office	84 Certificates of Birth, @ 50	42 00	
	38 do Marriage, @ 50	19 00	
	74 do Death, @ 50	74 00	
			135 00
A. McNaughton, P.M., Sudbury	Fines and Forfeitures	27 50	
A. G. Hill, P.M., Niagara Falls	do	288 03	
Wm. Wilson, J.P., Fitzroy	do	1 00	
G. Price, J.P., Owen Sound	do	2 50	
J. Bethune, J.P., International bridge	do	17 50	
W.A. Quibell, P.M., Sudbury	do	289 85	
J. Tissiman, P.M., Chatham	do	100 00	
County Attorney, Brant ...	do	48 00	
do Bruce ...	do	58 56	
do Carleton....	do	46 47	
do Essex	do	27 73	
do Haldimand .	do	95 00	
do Halton.....	do	28 85	
do Huron.....	do	5 76	
do Lincoln	do	213 12	
do Middlesex ..	do	24 00	
do Muskoka and Parry Sound	do	76 80	
do Northumberland and Durham	do	24 00	
do Ontario	do	5 70	
do Simcoe.....	do	4 60	
do Thunder Bay	do	3 78	
do Victoria	do	1 00	
do Waterloo ...	do	2 00	
do Wellington..	do	1 92	
do York	do	102 91	
	Carried forward	1,556 58	11,518 00

No. 9.

CASUAL REVENUE.—*Concluded.*

FROM WHOM RECEIVED.	SERVICE.	$ c.	$ c.
	Brought forward	1,556 58	11,518 00
Sundry persons	Fines under Game Laws	189 92	
Sheriff Carney, Sault Ste. Marie	Jury Fees	25 04	
R. H. Stewart, Parry Sound	do	3 00	
J. Meek, Port Arthur	do	4 50	
			1,779 04
J. Gordon Brown, Toronto	Surrogate Fees	3,558 00	
S. H. Ghent, Hamilton	do	379 10	
			3,937 10
Division Court Clerks	Fees		8,666 19
Insurance Companies	Fees under Ontario Insurance Act	825 00	
do and agents	do Insurance Corporations' Act, 1892	12,996 84	
Insurance Companies	Assessments	2,769 01	
			16,590 85
Registrars Toronto and York	Surplus Fees *re* Land Titles Office	1,092 41	
W. McCrea, L.M.T., Sault Ste. Marie	Fees	462 55	
W. Doran, L.M.T., North Bay	do	108 10	
P. McCurry, do Parry S'nd	do	189 55	
J. E Lount, do Bracebridge	do	131 10	
J. M. Munro, do Port Arthur	do	259 70	
			2,243 41
Warwick & Sons	Official *Gazette*		7,191 30
Clerk Legislative Assembly	Private Bills		5,755 12
L. K. Cameron, Queen's Printer	Sale of Statutes	1,904 85	
Jno. Notman	do	494 46	
			2,399 31
Estate Sir Daniel Wilson	Succession duty	100 00	
do T. M. Hammond	do	200 00	
do W. Hickling	do	458 53	
			758 53
County Treasurers'	Removal of Lunatics and Prisoners		5,260 30
Sundry persons	Shooting licenses	1,375 25	
do	Fishing licenses	484 00	
			1,859 25
J. L. Hughes	Refund of unexpected balance *re* National Educational Association	79 33	
Sudbury *Star*	Refund subscription	1 00	
Dept. of Education	Forfeited grant 8 and 11 Amaranth, 1891	100 00	
			180 33
Sundry municipalities	Dundas and Waterloo Road Debentures		2,100 00
W. A. Quibell, P.M., Sudbury	Rent gaol ground	8 00	
do	Prison labor	10 30	
			18 30
	Total		70,257 03

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, March 10th, 1893.

No. 10.—GOVERNMENT STATIONERY OFFICE.

		$ c.	$ c.
	Balance of stock on hand January 1st, 1892		30,710 67
H. M. Blight	Supplies	4 00	
Rowsell & Hutchison	do	11 60	
Copp, Clark Co	do	74 80	
J. Underwood & Co	do	236 14	
Barber & Ellis Co	do	847 80	
Hobbs Hardware Co	do	1,537 34	
Warwick & Sons	do	3,168 89	
Brown Bros	do	1,599 72	
Buntin, Reid & Co	do	4,804 29	
Hart & Co	do	22 50	
George Bengough	do	36 30	
Cyclostyle Co	do	23 61	
Toronto Lithograph Co	do	5 35	
Carswell & Co	do	15 72	
James Bain & Son	do	135 68	
Stanton & McCrae	do	291 04	
Toronto Rubber Co	do	210 00	
Elliott & Co	do	66 61	
J. Davis & Co	do	108 00	
Toronto Paper Box Co	do	16 00	
Rose Publishing Co	do	3 75	
H. A. Nelson & Sons	do	15 20	
E. Harris Co	do	19 12	
Hunter, Rose & Co	do	1,211 57	
A. J. Henderson	do	15 00	
H. E. Clarke & Co	do	31 75	
Office Specialty Co	do	10 80	
Lovell Bros	do	75	
Rice Lewis & Son	do	3 90	
Alexander & Anderson	do	14 14	
H. L. Lugsdin	do	15 50	
W. H. Bleasdell & Co	do	54 41	
P. C. Allan	do	12 00	
Grand & Toy	do	4 50	
Estate Glover Harrison	do	3 00	
		14,630 78	
	Less received from sales of stationery	382 46	
			14,248 32

	$ c	$ c.	$ c.
Distribution for the year ending 31st Dec., 1892.			
Civil Government—			
Attorney-General's Department	357 87		
Education Department	242 60		
Crown Lands Department	1,597 25		
Bureau of Mines	94 96		
Public Works Department	530 98		
Treasury Department	244 64		
Provincial Auditor's Office	126 64		
Public Institutions	211 30		
Department of Agriculture	321 97		
Registrar-General's Branch	197 96		
Immigration Department	17 16		
Secretary and Registrar's Department	654 92		
License Branch	190 41		
Board of Health	117 96		
Queen's Printer	46 61		
Insurance Office	230 90		
		5,184 13	
Legislation—			
Stationery, printing and binding	2,333 42		
Printing Bills, etc	76 13		
Expenses	480 92		
		2,890 47	
Administration of Justice—			
Supreme Court of Judicature	261 15		
Court of Appeal	33 25		
High Court	73 95		
Chancery Division	114 28		
Queen's Bench Division	119 73		
Common Pleas do	46 56		
Inspection of Offices under Judicature Act	57 25		
Inspection of Division Courts	74 90		
Seals and other contingencies	14 65		
Land Titles Office	66 93		
Local Masters of Titles	331 59		
District of Nipissing	32 00		
Districts of Muskoka and Parry Sound	290 03		
Drainage Act	30 52		
		1,546 79	
Education—			
Ontario School of Pedagogy	12 15		
Public and Separate School Inspection	49 73		
Departmental Examinations	1,087 11		
Normal and Model Schools, Toronto	467 70		
do do Ottawa	164 81		

No. 10.—GOVERNMENT STATIONERY OFFICE.—*Concluded.*

——	——	$ c.	$ c.
Total			44,958 99

——	$ c.	$ c.	$ c.
School of Practical Science	170 41		
Art Schools, Examinations, etc.	13 70		
		1,965 61	
Public Institutions—			
Asylum for Insane, Toronto	227 12		
do do Mimico	258 20		
do do London	57 78		
do do Hamilton	39		
do do Kingston	13 64		
do do Orillia	4 29		
Central Prison, Toronto	293 72		
Reformatory for Boys, Penetanguishene	135 94		
Deaf and Dumb Institute, Belleville	228 48		
Blind Institute, Brantford	39		
Andrew Mercer Reformatory, Toronto	56 74		
		1,276 69	
Agriculture—			
Forestry	8 38		
Bureau of Statistics	434 48		
Agricultural College	36 20		
		479 06	
Miscellaneous—			
Charges on Revenue	1 90		
Marriage Licenses	2 50		
Removal Fund	2 25		
Factories Act	24 58		
Abritration, Canada and Quebec	10 15		
Drainage Commission	15 70		
Exhibit for Imperial Institute	33 23		
Dehorning Commission	11 75		
Columbia Exhibition	69 07		
Unprovided—			
Proton Commission	3 38		
Fish and Game Commission	16 34		
Prison Reform do	20 43		
		211 28	
			13,554 03
Balance Stock on hand			31,404 96
Total			44,958 99

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

EXPENDITURE STATEMENTS.

No 11.

STATEMENT OF THE EXPENDITURE by the Treasurer of Ontario, during the year ended 31st December, 1892.

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	CIVIL GOVERNMENT.				
	LIEUTENANT-GOVERNOR'S OFFICE.				
	SALARIES.				
F. H. C. Law	Twelve months' salary as Official Secretary		1,200 00		
H. E. H. Vernon	Five do Private do		332 00		
A. T. Kirkpatrick	Six do do		391 40		
Thomas Lymer	Twelve do Messenger		480 00		
				2,403 40	
	EXPENSES.				
F. H. C. Law	To pay sundries			1,500 00	
	GOVERNMENT HOUSE.				
	EXPENSES.				
W. P. Strickland	Twelve months' salary as Gardener and Caretaker		500 00		
P. Chambers	do Fireman and Assistant Gardener		550 00		
James Exelby	do Assistant Gardener		450 00		
P. Carpenter	do do		450 00		
				1,950 00	
	Carried forward			5,853 40	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			5,853 40	
	EXECUTIVE COUNCIL AND ATTORNEY-GENERAL'S DEPARTMENT.				
	SALARIES.				
Hon. Sir Oliver Mowat	Twelve months' salary as Attorney-General and Premier		7,000 00		
J. R. Cartwright	do Deputy Attorney-General and Clerk of Executive Council		3,000 00		
A. M. Dymond	do Law Secretary		800 00		
S. T. Bastedo	do Clerk and Premier's Secretary		1,750 00		
J. L. Capreol	do Assistant Clerk, Executive Council		1,550 00		
M. Currey	do Clerk and Short-hand Writer		1,150 00		
C. A. Fitch	do Clerk		850 00		
Clarence Bell	do do		550 00		
J. G. O'Donoghue	Eight do Messenger		268 00		
F. Bulmer	Three do do		75 00		
H. Chase	One do do		33 33		
				17,026 33	
	EXPENSES.				
Warwick & Sons	Printing and binding	203 81			
L. K. Cameron	Stationery	357 87			
Rowsell & Hutchison	Binding	8 90			
Cyclostyle Co	Stationery	3 10			
Grand & Toy	do	3 00			
			576 68		
Brown Bros	Caligraph	100 00			
A. J. Henderson	do	80 00			
W. Kelliher	Typewriter	80 00			
C. Gripton	Rubber stamps	11 00			
G. F. Bostwick	Office files	9 20			
F. G. Verral	Caligraph supplies	12 95			
			293 15		
Carswell & Co	Law books	94 00			
Williamson & Co	do	16 00			
J. E. Bryant Co	do	10 00			
W. F. Dyas	Books	7 50			
Geo. F. Jelf	do	4 00			
			131 50		

Imrie & Graham	Legal charts, etc	4 50			
W. J. Dickson	Almanacs	1 80			
Might's Directory Co	Directories (Toronto and Ontario)	15 00			
D. Battersby	Railway guide	75			
			22 05		
Mrs. Hubertus	Postage stamps	340 00			
G. N. W. Telegraph Co	Telegrams	163 87			
C. P. R. do	do	71 92			
Bell Telephone Co	Messages	4 15			
			579 91		
M. F. Hale & Co	Cab hire	19 25			
R. Bond	do	50			
James McConvey	do	178 75			
J. Shepard	do	5 75			
J. Humphrey	do	75			
C. R. Notman	do	5 25			
Express Co	Charges	3 00			
			213 25		
R. S. Cassels	Copy of judgment, Hughson *v.* Township of Norwich	2 50			
G. F. Harman	do Regina *v.* Toland	2 40			
			4 90		
C. A. Fitch	Petty office expenses	19 00			
J. G. O'Donoghue	do	43 40			
C. F. Bulmer	do	15 00			
C. Bell	do	9 00			
			86 40		
G. Bengough	Repairing typewriter	1 65			
W. J. Still	do	2 00			
Might's Directory Co	Mounting maps	1 00			
			4 65		
Law Society	Certificate for Deputy Attorney-General		17 00		
Sundry newspapers	Subscriptions and advertisements		295 45		
C. H. Chase	Twelve months' salary as Housekeeper and Messenger	550 00			
J. Clarke	do Fireman	400 00			
D. Austin	Services as Messenger	22 00			
			972 00		
				3,196 97	
	EDUCATION DEPARTMENT.				
	SALARIES.				
Hon. G. W. Ross	Twelve months' salary as Minister of Education		4,000 00		
John Millar	do Deputy Minister of Education		2,200 00		
F. J. Taylor	do Chief Clerk and Accountant		1,600 00		
H. R. Alley	do Clerk and Minister's Secretary		1,300 00		
J. T. R. Stinson	do Clerk		1,250 00		
	Carried forward		10,350 00	26,076 70	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		10,350 00	26,076 70	
	EDUCATION DEPARTMENT.—*Continued.*				
	SALARIES.—*Continued.*				
H. M. Wilkinson	Twelve months' salary as Clerk		1,250 00		
A. C. Paull	do do		1,100 00		
F. N. Nudel	do do		1,100 00		
W. W. Jeffers	do do		750 00		
J. H. J. Kerr	Two do do		117 00		
E. Quesnel	Nine do do		503 00		
E. Williams	Twelve do do		750 00		
R. J. Bryce	do Clerk and Messenger		700 00		
				16,620 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	414 39			
L. K. Cameron	Stationery	242 60			
R. K. Tweedie	do	50			
			657 49		
Brown Bros	Caligraph, etc	112 25			
A. J. Henderson	Caligraph supplies	1 00			
J. Underwood & Co	do	1 00			
Map & School Supply Co	Mounting maps	1 50			
			115 75		
Williamson & Co	Books	16 00			
Copp, Clark Co	do	5 26			
Might's Directory Co	Directories	25 00			
Dep't. Public Printing, Ottawa	Postal guides	2 00			
			48 26		
F. Porter	Postage stamps	380 00			
H. C. Allen	Postage	1 10			
G. N. W. Telegraph Co	Telegrams	69 42			
C. P. R. Telegraph	do	3 44			
			453 96		
F. Doane	Cab hire	191 55			
M. F. Hale & Co	do	13 00			

R. Bond	Cab hire	50		
C. Brown	do	50		
A. M. Bowman	do	1 00		
Street Railway Co.	Car tickets	30 50		
			237 05	
Rose Cartage Co.	Cartage	26 95		
Dominion Express Co.	Charges	1 65		
Canadian do	do	9 20		
C. M. Richardson	Express charges	1 25		
R. Ramsay Wright	To pay express charges	20 00		
			59 05	
Hon. G. W. Ross	Travelling expenses	30 00		
J. Millar	do	12 30		
H. R. Alley	do	9 45		
			51 75	
Educational Journal	Advertising	70 00		
Educational Monthly	do	7 00		
Sundry newspapers	Subscriptions	36 72		
			113 72	
H. E. Clarke & Co	Despatch bag		7 50	
Department Agriculture	Copyright fees		7 50	
H. M. Wilkinson	To pay sundries		2 50	
H. W. Davies	Services	100 00		
C. Jeffery	Service as typewriter	17 00		
M. Cochrane	do stenographer	80 90		
L. B. Davidson	Copying	58 00		
J. H. J. Kerr	do	42 00		
H. Allen	Messenger service	4 00		
			301 90	
L. McCorkindale	Twelve months' salary as Caretaker		509 00	
				2,556 43
	CROWN LANDS DEPARTMENT.			
	Salaries.			
Hon. A. S. Hardy	Twelve months' salary as Commissioner		4,000 00	
Aubrey White	do Assistant Commissioner		2,800 00	
Geo. Kennedy	do Law Clerk		2,000 00	
Frank Yeigh	do Clerk and Commissioner's Secretary		1,250 00	
	Land Sales and Free Grants.			
A. Kirkwood	Twelve months' salary as Chief Clerk		1,900 00	
J. J. Murphy	do Clerk		1,400 00	
Julian Sale	do do		950 00	
E. S. Williamson	do do		750 00	
C. J. M. Hardy	do do		700 00	
	Carried forward		15,750 00	45,253 13

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		15,750 00	45,253 13	
	CROWN LANDS DEPARTMENT.—*Continued.*				
	SURVEYS, PATENTS AND ROADS BRANCH.				
G. B. Kirkpatrick	Twelve months' salary as Director of Surveys		2,000 00		
W. Revell	do Draughtsman		1,300 00		
J. M. Grant	do Clerk of Patents		1,400 00		
P. Alma	do Clerk		1,250 00		
W. F. Lewis	do do		1,000 00		
Henry Smith	do Superintendent Colonization Roads		1,900 00		
C. Cashman	do Clerk		1,150 00		
J. H. Bradshaw	do do		850 00		
	WOODS AND FORESTS.				
J. A. G. Crozier	Twelve months' salary as Chief Clerk		1,650 00		
T. C. Taylor	do Clerk		1,350 00		
H. R. Hardy	do do		1,100 00		
H. E. Rudge	Seven do do		554 00		
J. J. Kelly	One do do		82 25		
P. J. Durkin	Twelve do do		850 00		
A. McLaren	do do		850 00		
Kenneth Millar	do do		1,000 00		
	ACCOUNTS BRANCH.				
D. Geo. Ross	Twelve months' salary as Accountant and Book-keeper		1,800 00		
E. Leigh	do Clerk		1,200 00		
M. J. Ferris	One do do		75 00		
J. J. Kelly	Eleven do do		774 00		
C. P. Higgins	Twelve do do		1,100 00		
C. S. Jones	do Registrar		1,500 00		
				40,485 25	

	Expenses.				
Warwick & Sons	Printing and binding	1,704 92			
Rowsell & Hutchison	Binding	4 50			
Copp Clark Co.	Lithographing	4 50			
L. K. Cameron	Stationery	1,597 25			
W. Barber & Bros	Paper	7 72			
Hammond Typewriter Co.	Supplies	1 00			
W. Aikins	Letter files	1 00			
C. Gripton	Rubber stamps	24 00			
			3,344 89		
Williamson & Co	Books	16 00			
W. F. Dyas	do	3 75			
J. J. Murphy	do	4 25			
A. Dwyer	do	5 00			
Rowsell & Hutchison	Law books	2 50			
J. E. Bryant Co.	do	5 00			
G. F. Jelf	do	8 00			
P. S. King & Son	do	6 38			
Carswell & Co	do	5 00			
			55 88		
W. J. Dickson	Almanacs	7 20			
Might's Directory Co.	Directories	38 00			
W. G. Tapsfield	do	3 00			
Toronto Railway and Steamboat Guide	Subscription	5 00			
D. Battersby	Railway guide	1 50			
International Railway Guide	Subscription	2 50			
Waghorn's Guide	do	1 00			
J. Lewis	Maps	3 00			
Might's Directory Co.	Mounting maps	1 50			
Imrie & Graham	Legal charts, etc.	9 00			
C. D. Barr	Circulars *re* R. R. Colony	2 00			
			73 70		
F. Frank	Postage stamps	1,120 00			
G. N. W. Telegraph Co.	Telegrams	177 70			
C. P. R. Telegraph	do	218 17			
Bell Telephone Co	Messages	3 55			
			1,519 42		
M. F. Hale & Co	Cab hire	71 00			
R. Bond	do	24 25			
C. R. Notman	do	5 25			
Verral Transfer Co.	Cartage	3 00			
			103 50		
Toronto Lithographing Co.	Embossing die	5 00			
G. Bengough	Repairing typewriter	1 25			
A. J. Henderson	do caligraph	2 25			
			8 50		
	Carried forward		5,105 89	85,738 38	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		5,105 89	85,738 38	
	CROWN LANDS DEPARTMENT.—*Continued.*				
	EXPENSES.—*Continued.*				
C. Gripton	Metal type, etc	4 80			
Williamson & Co	Typewriter wheel	6 00			
			10 80		
N. R. Butcher	Typewriter	120 00			
G. Bengough	do	60 00			
N. R. Butcher	Rent of typewriter	20 00			
G. Bengough	do	10 00			
			210 00		
Sundry newspapers	Advertising *re* sale of pine timber	206 05			
do	do mining regulations	201 55			
do	do sale timber births	7 32			
do	Subscriptions	316 69			
			731 01		
E. B. Brown	Copy of judgment	4 70			
J. D. Thompson	do abstract	56			
R. A. Lyon	do	1 90			
			7 16		
F. Yeigh	Petty office expenses		20 00		
F. Oliver	Sharpening erasers		25		
H. Jackman	Posting bills		2 25		
American Forestry Asso'n	Subscription		2 00		
A. Kirkwood	Report of Entomological Commission		1 20		
M. J. Ferris	Service as extra Clerk	500 00			
B. G. Connolly	do	94 29			
W. H. Cahill	do	352 50			
A. E. Wickens	do	216 00			
M. J. Comiskey	do	156 00			
H. E. Rudge	do	66 60			
Miss Collard	Typewriting	8 40			
A. McGee	do	2 25			
			1,396 04		

F. Frank	Services as Acting Housekeeper	500 00		
H. Lake	do Messenger	240 00		
W. Maloney	do Fireman	255 00		
D. Kinnan	do Night Watchman	500 00		
R. Cootes	do Acting Fireman	58 50		
			1,553 50	
				9,040 10
	BUREAU OF MINES.			
	SALARIES.			
A. Blue	Twelve months' salary as Director of Mines		2,500 00	
T. W. Gibson	do Clerk and Shorthand Writer.		1,300 00	
Aaron Slaght	do Inspector		750 00	
				4,550 00
	EXPENSES.			
Warwick & Sons	Printing and binding	270 67		
W. Barber & Bros	Paper	18 45		
L. K. Cameron	Stationery	94 96		
C. Gripton	Rubber stamp	6 00		
			390 08	
P. S. King & Sons	Books	4 87		
Williamson & Co	do	33 10		
Canadian Mining Manual	do	18 45		
Dr. Otto Hahn	do	10 00		
W. F. Dyas	do	3 75		
American Iron & Steel Ass'n	do	5 00		
			75 17	
Cassino Art Co	Directory	2 09		
W. J. Dickson	Almanac	40		
			2 49	
F. Frank	Postage stamps	200 00		
C. P. R. Telegraph	Telegrams	7 11		
G. N. W. Telegraph Co	do	2 95		
			210 06	
A. Blue	Travelling expenses	175 25		
T. W. Gibson	do	5 00		
A. Slaght	do and disbursements	446 01		
			626 26	
A. Blue	Travelling expenses	134 65		
Globe Printing Co	Copies of special issue	100 00		
American Institute of Mining Engineers	Subscription, etc	11 00		
Sundry newspapers	Subscriptions	62 00		
			307 65	
				1,611 71
	Carried forward			100,940 19

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			100,940 19	
	PUBLIC WORKS DEPARTMENT.				
	SALARIES.				
Hon. C. F. Fraser	Twelve months' salary as Commissioner		4,000 00		
K. Tully	do Architect		2,400 00		
R. McCallum	do Engineer		2,000 00		
Wm. Edwards	do Secretary		2,100 00		
J. P. Edwards	do Accountant and Law Clerk		1,250 00		
F. R. Heakes	do Architectural Draughtsman		1,350 00		
R. P. Fairbairn	do Engineering do		1,300 00		
T. M. Hennessy	do Assistant Architectural Draughtsman		1,000 00		
C. G. Horetzky	do do Engineering do		1,050 00		
M. Wilson	do First Clerk and Shorthand Writer		1,100 00		
S. G. O'Grady	do Clerk and Paymaster		1,000 00		
C. A. McDonald	do Messenger		550 00		
				19,100 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	275 45			
W. Barber & Bros	Paper	5 15			
L. K. Cameron	Stationery	530 98			
T. Henry	do	68 75			
C. Gripton	Rubber stamps	10 00			
			890 33		
Mrs. Hubertus	Postage stamps	50 00			
G. M. Rose	do	200 00			
C. P. R. Telegraph	Telegrams	16 58			
G. N. W. do	do	97 20			
			363 78		
Williamson & Co	Law books	22 00			
W. J. Dickson	Almanacs	2 70			
Might's Directory Co	Directories, etc	15 50			
D. Battersby	Railway guide	75			
Steamboat and Railway Guide	Subscription	1 30			
Imrie & Graham	Legal chart	1 25			
			43 50		

Geo. Bengough	Repairing typewriter	4 80			
Aikenhead & Crombie	Guage	2 25			
James Foster	Repairing Engineer's instruments	1 70			
			8 75		
M. F. Hale & Co	Cab hire	11 50			
R. Bond	do	31 50			
C. Brown	do	5 00			
Street Railway Co	Car tickets	129 00			
			177 00		
G. T. Railway Co	Freight charges	1 56			
Canadian Express Co	Charges	5 45			
Rose Cartage Co	Cartage	75			
			7 76		
W. Edwards	Travelling expenses	5 00			
K. Tully	do	5 25			
R. McCallum	do	18 10			
			28 35		
C. A. McDonald	Paste		60		
J. P. Edwards	To pay for registration fee		4 15		
W. Edwards	To pay sundries		3 78		
Sundry newspapers	Subscriptions		46 50		
John Edwards	Services as extra Clerk		60 00		
				1,634 50	

TREASURY DEPARTMENT.

Salaries.

Hon. R. Harcourt	Twelve months' salary as Treasurer		4,000 00		
D. E. Cameron	do Assistant Treasurer		2,200 00		
F. A. Carrell	do Chief Clerk		1,350 00		
L. V. Percival	do Clerk and Minister's Secretary		1,250 00		
L. V. Percival	do Clerk of Algoma Taxes		300 00		
W. C. Noxon	do Clerk and Cashier		1,100 00		
W. N. Douglas	do Clerk		1,000 00		
T. J. Wells	do do		750 00		
J. J. Walsh	do Messenger		375 00		
				12,325 00	

Expenses.

Warwick & Sons	Printing and binding	333 92			
W. Barber & Bros	Paper	52 09			
L. K. Cameron	Stationery	244 64			
H. L. Lugsdin	do	2 04			
C. Gripton	Rubber stamps, etc	33 10			
			665 79		
	Carried forward		665 79	133,999 69	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		665 79	133,999 69	
	TREASURY DEPARTMENT.—*Continued.*				
	EXPENSES.—*Continued.*				
Rolph, Smith & Co	Cheque books	178 50			
Carswell & Co	Law books	10 00			
G. F. Jelf	do	8 00			
W. F. Dyas	Books	7 50			
Rose Publishing Co	do	6 00			
Williamson & Co	do	16 00			
P. C. Allan	Periodicals	70			
Might's Directory Co	Directories	30 00			
D. Battersby	Railway guide	75			
Toronto Railway and Steamboat Guide	Subscription	5 00			
			262 45		
Imrie & Graham	Legal charts, etc	9 00			
Toronto Photo Co	Photos	6 00			
M. E. Lauder	Photo	2 00			
			17 00		
Geo. F. Bostwick	Cash-box	5 00			
W. J. Gorle	Deed boxes	6 00			
H. E. Clarke & Co	Leather bag	4 75			
Brown Bros	Repairing caligraph	3 50			
W. J. Still	do	1 00			
			20 25		
Mrs. Hubertus	Postage stamps	506 00			
W. C. Noxon	Postage	28 19			
G. M. Rose	Postal cards	17 00			
			551 19		
Bell Telephone Co	Messages	2 00			
C. P. R. Telegraph	Telegrams	10 06			
G. N. W. Telegraph Co	do	53 82			
Electric Despatch Co	Messenger service	3 90			
			69 78		
Dominion Express Co	Charges	25			
Canadian Express Co	do	1 70			
G. T. Railway Co	Freight charges	45			
			2 40		

M. F. Hale & Co	Cab hire	57 00			
R. Bond	do	3 00			
C. R. Notman	do	3 00			
Street Railway Co	Car tickets	23 00			
			86 00		
Hon. R. Harcourt	Travelling expenses	30 00			
D. E. Cameron	do	25 00			
			55 00		
T. J. Wells	To pay sundries	17 00			
L. V. Percival	Petty office expenses	10 00			
W. C. Noxon	do	27 51			
			54 51		
London Guarantee and Accident Co	Premium on bonds of Assistant Treasurer and Cashier		50 00		
Sundry newspapers	Subscriptions		89 25		
E. McDonell	Services as House-keeper	200 00			
J. J. Ryan	do Fireman	250 00			
M. Healey	do Acting Fireman	25 50			
			475 50		
G. W. Duncan	do Extra Clerk	152 50			
W. Preston	do do	78 00			
T. J. Wells	Work in vault	5 00			
J. J. Walsh	do	5 00			
			240 50		
				2,639 62	
	PROVINCIAL AUDIT OFFICE.				
	SALARIES.				
C. H. Sproule	Twelve months' salary as Provincial Auditor		2,400 00		
A. J. Rattray	do Book-keeper		1,450 00		
T. P. Stewart	do Clerk		950 00		
W. W. Wood	do do		950 00		
				5,750 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	70 42			
L. K. Cameron	Stationery	126 64			
Cyclostyle Co	do	7 75			
			204 81		
Mrs. Hubertus	Postage stamps	25 00			
G. N. W. Telegraph Co	Telegrams	3 05			
			28 05		
Imrie & Graham	Legal chart	1 25			
Railway and Steamboat Guide	Subscription	5 00			
Might's Directory Co	Directory, etc	5 50			
W. J. Dickson	Almanacs	80			
			12 55		
	Carried forward		215 41	142,389 31	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		245 41	142,389 31	
	PROVINCIAL AUDIT OFFICE.—*Continued.*				
	EXPENSES.—*Continued*				
W. F. Dyas	Books	3 75			
Hart & Co	do	3 40			
Williamson & Co	do	25 00			
			32 15		
M. F. Hale & Co	Cab hire	3 25			
Street Railway Co	Car tickets	1 00			
W. W. Wood	Travelling expenses	79 50			
T. P. Stewart	do	74 60			
C. H. Sproule	do	100 00			
			258 35		
J. J. Walsh	Services as Messenger		25 00		
T. P. Stewart	Petty office expenses		5 00		
Sundry newspapers	Subscriptions		21 00		
				586 91	
	LICENSE AND ADMINISTRATION OF JUSTICE, ACCOUNTS BRANCH.				
	SALARIES.				
H. Totten	Twelve months' salary as First Officer		1,900 00		
T. Botham	do Provincial Inspector and Accountant		1,400 00		
J. K. Stewart	Eleven do do do		1,604 16		
J. F. Mowat	Twelve do Assistant Accountant		1,200 00		
F. X. Kormann	do Clerk		1,000 00		
E. A. McLaurin	do do		1,400 00		
				8,504 16	
	EXPENSES.				
L. K. Cameron	Stationery	190 41			
C. Gripton	Rubber stamp	6 00			
			196 41		
Mrs. Hubertus	Postage stamps	200 00			

G. N. W. Telegraph Co	Telegrams	16 50			
C. P. R. Telegraph	do	6 71			
			223 21		
Imrie & Graham	Legal chart, etc	3 25			
Might's Directory Co	Directory, etc	10 50			
W. J. Dickson	Almanacs	1 20			
Williamson & Co	Maps	3 00			
Railway and Steamboat Guide	Subscription	5 20			
D. Battersby	Railway guide	75			
Carswell & Co	Law books	3 60			
			27 50		
M. F. Hale & Co	Cab hire	7 50			
Canadian Express Co	Charges	1 15			
Rose Cartage Co	Cartage	25			
			8 90		
H. E. Clarke & Co	Boxes for papers		4 90		
Estate H. E. Clarke & Co	do		8 50		
Sundry newspapers	Subscriptions		14 50		
				483 92	
	SECRETARY AND REGISTRAR'S DEPARTMENT.				
	SALARIES.				
Hon. J. M. Gibson	Twelve months' salary as Secretary and Registrar		4,000 00		
G. E. Lumsden	do Assistant Secretary		2,200 00		
J. B. McLachlan	do Clerk		1,200 00		
J. D. Warde	do do		1,100 00		
L. H. Irving	do do		1,000 00		
F. C. Ussher	do Deputy Registrar		1,400 00		
Geo. Hobbs	do Clerk		900 00		
E. Jenkinson	do do		850 00		
J. I. McIntosh	do Clerk and Minister's Secretary		1,250 00		
Geo. Craig	do Clerk and Shorthand Writer		750 00		
R. A. Eaton	do Engrossing Clerk		700 00		
A. Burtchael	do Messenger		450 00		
				15,800 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	801 81			
L. K. Cameron	Stationery	654 92			
Cyclostyle Co	do	4 10			
			1,460 83		
G. Bengough	Typewriter	120 00			
Hammond Typewriter Co	Typewriter supplies	1 50			
C. Gripton	Rubber stamps	5 25			
Grand & Toy	do	60			
G. Bunker	do	2 50			
			129 85		
	Carried forward		1,590 68	167,764 30	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE	$ c.	$ c.	$ c.	$ c.
	Brought forward		1,590 68	167,764 30	
	SECRETARY AND REGISTRAR'S DEPARTMENT.—*Continued.*				
	EXPENSES.—*Continued.*				
G. M. Rose	Postage stamps	650 00			
G. N. W. Telegraph Co	Telegrams	67 98			
C. P. R. do	do	19 83			
Bell Telephone Co	Messages	3 00			
Sundry persons	Messenger service	7 50			
			748 31		
Williamson & Co	Books	26 50			
J. Gemmill	do	4 00			
Carswell & Co	do	70 10			
W. F. Dyas	do	3 75			
G. F. Jelf	do	8 00			
Rose Publishing Co	do	4 00			
			116 35		
Imrie & Graham	Legal charts	12 25			
W. H Irwin & Co	Directory	2 50			
Railway and Steamboat Guide	Subscription	10 20			
Might's Directory Co	Directories	21 00			
W. J. Dickson	Almanacs	80			
Rolph, Smith & Co	Repairing seal, etc	5 75			
G. Bengough	do typewriters	8 25			
			60 75		
M. F. Hale & Co	Cab hire	68 75			
R. Bond	do	5 75			
C. R. Notman	do	1 00			
			75 50		
Dominion Express Co	Charges	2 15			
Canadian Express Co	do	5 95			
G. T. Railway Co	Freight charges	1 25			
			9 35		
Hon. J. M. Gibson	Travelling expenses	82 50			
L. H. Irving	do	18 95			
J. I. McIntosh	do	60 18			
			161 63		

J. B. McLachlan	Petty office expenses		1 01		
Bradstreet Comm'l Agency	Subscription	16 68			
Sundry newspapers	Subscriptions	120 32			
			137 00		
F. J. Glackmeyer	Services as extra Clerk	115 50			
D. C. Ross	do do	52 00			
W. H. Clarke	do do	305 00			
			472 50		
A McDonell	do Housekeeper	200 00			
J. J. Ryan	do Fireman	260 00			
			460 00		
				3,833 08	
	PUBLIC INSTITUTIONS OFFICE.				
	SALARIES.				
R. Christie	Twelve months' salary as Inspector of Asylums		2,600 00		
T. F. Chamberlain	do do Prisons and Charities		2,200 00		
James Mann	do Chief Clerk		1,300 00		
F. M. Nicholson	do Clerk and Shorthand Writer		1,100 00		
W. Drummond	do Clerk		850 00		
I. R. Aikens	do do		700 00		
J. O'Shea	do Messenger		325 00		
				9,075 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	375 91			
W. Barber & Bros	Paper	115 59			
L. K. Cameron	Stationery	211 30			
Brown Bros.	Supplies for typewriter	9 00			
G. M. S. Wilson	Postage scale	5 00			
C. Gripton	Rubber stamps	3 00			
			719 80		
Mrs. Hubertus	Postage stamps	580 00			
C. P. R. Telegraph	Telegrams	36 78			
G. N. W. do	do	78 36			
Bell Telephone Co	Messages	2 60			
Sundry persons	Messenger service	3 50			
			701 24		
Imrie & Graham	Legal chart	3 25			
Might's Directory Co	Directories	15 00			
W. J. Dickson	Almanacs	1 20			
International Railway Guide	Subscription	2 52			
Toronto Railway and Steamboat Guide	do	5 00			
Bradstreet Comm'l Agency	do	16 66			
			43 63		
M. F. Hale & Co	Cab hire	64 75			
T. F Chamberlain	Travelling expenses	863 20			
J. Mann	do	36 60			
F. M. Nicholson	do	48 80			
	Carried forward	1,013 35	1,464 67	180,672 38	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	1,013 35	1,464 67	180,672 38	
	PUBLIC INSTITUTIONS OFFICE– *Continued.*				
	EXPENSES.—*Continued.*				
I. R. Aikens	Travelling expenses	83 30			
L. K. Cameron	do	16 35			
R. Christie	do	50 46			
			1,163 46		
W. Drummond	Petty office expenses		20 00		
Sundry newspapers	Subscriptions		38 45		
				2,686 58	
	DEPARTMENT OF AGRICULTURE.				
	SALARIES.				
Hon. J. Dryden	Twelve months' salary as Minister		4,000 00		
C. C. James	do Deputy Minister and Secretary Bureau of Industries		2,200 00		
W. F. McMaster	do Assistant Secretary		1,700 00		
W. O. Galloway	do Clerk		1,250 00		
D. I. Johnston	do do		900 00		
N. J. Clark	do do		900 00		
D. J. O'Donoghue	do do		900 00		
T. McGillicuddy	do Clerk and Shorthand Writer		1,000 00		
W. B. Varley	do Clerk and Shorthand Secretary		900 00		
Thos. Lynch	do Messenger		500 00		
				14,250 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	75 34			
L. K. Cameron	Stationery	321 97			
Office Specialty Co	do	4 50			
Brown Bros	Pens	3 10			
G. F. Bostwick	Indices	9 45			
Office Specialty Co	Copier	25 00			
J. Bruce	Reporters' note books	3 50			

Williamson & Co	do	1 20			
C. Gripton	Rubber stamps	2 60			
			446 66		
Mrs. Hubertus	Postage stamps	398 00			
C. P. R. Telegraph	Telegrams	2 89			
G. N. W. do	do	63 29			
Bell Telephone Co	Messages	1 60			
Electric Despatch Co	Messenger service	40			
			466 18		
Williamson & Co	Books	17 50			
W. F. Dyas	do	7 50			
J. E. Bryant Co	do	12 00			
Carswell & Co	do	5 50			
Montreal Paper Mills Co	do	1 80			
W. J. Dickson	Almanacs	1 60			
Might's Directory Co	Directories	10 00			
Canadian Textile Directory	Subscription	2 00			
Toronto Railway and Steamboat Guide	do	3 90			
			61 80		
Street Railway Co	Car tickets	5 53			
M. F. Hale & Co	Cab hire	17 75			
C. Brown	do	4 00			
C. R. Notman	do	1 50			
J. McConvey	do	1 50			
			30 28		
G. T. Railway Co	Freight charges	3 68			
C. P. Railway Co	do	1 51			
Canadian Express Co	Charges	17 20			
Dominion Express Co	do	80			
Northern Pacific Express Co	do	2 50			
J. Macdonald	Cartage	31 95			
R. Kelly	do	35			
Rose Cartage Co	do	2 50			
			60 49		
Hon. J. Dryden	Travelling expenses	118 85			
C. C. James	do	32 25			
			151 10		
A. J. Henderson	Caligraph		40 00		
W. B. Varley	Petty office expenses		6 79		
Sundry newspapers	Subscriptions		82 55		
J. M. Donaldson	Services as Fireman		380 00		
				1,725 85	
	Carried forward			199,334 81	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			199,334 81	
	REGISTRAR-GENERAL'S BRANCH.				
	SALARIES.				
P. H. Bryce	Twelve months' salary as Deputy Registrar-General		500 00		
R. B. Hamilton	do Inspector		1,200 00		
J. McG. Ridley	do Clerk		900 00		
T. F. Callaghan	do do		900 00		
C. M. Pardee	do do		900 00		
F. Jones	do do		800 00		
C. S. Horrocks	do do		800 00		
M. H. Smith	do Shorthand Writer		200 00		
E. Jury	do Messenger		240 00		
F. Warwick	Six do Clerk		500 00		
				6,940 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	1,284 93			
W. Barber & Bros	Paper	183 13			
L. K. Cameron	Stationery	197 96			
H. E. Clarke & Co	Parcel strap	75			
C. Gripton	Rubber stamps	18 00			
			1,684 77		
G. M. Rose	Postage stamps	120 00			
Mrs. Hubertus	do	105 00			
P. H. Bryce	do	15 25			
G. N. W. Telegraph Co	Telegrams	1 30			
			241 55		
Might's Directory Co	Directories	16 00			
W. J. Dickson	Almanacs	80			
			16 80		
D. Patterson	Services as Registrar in Unorganized Districts	16 30			
J. T. Hawkins	do do	90			
R. E. Miller	do do	7 20			
			24 40		
C. R. Notman	Cab hire	50			
W. Bacon	Cartage	6 90			
A. E. Mallory	do	90			

M. F. Hale & Co	do	1 00			
Rose Cartage Co	do	75			
			10 05		
R. B. Hamilton	Travelling expenses		500 00		
Bell Telephone Co	Removing phone		50		
W. Smith	Services as extra Clerk	658 00			
E. P. Cliff	do	430 00			
W. McArthur	do	534 00			
W. L. Weatherly	do	480 00			
J. M. Leet	do	368 00			
George Wheler	do	200 00			
E. Clark	Services as acting Messenger	5 00			
F. G. Verral	Typewriting	1 25			
			2,676 25		
				5,154 32	
	IMMIGRATION DEPARTMENT.				
	SALARIES.				
D. Spence	Twelve months' salary as Secretary			1,350 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	19 50			
L. K. Cameron	Stationery	17 16			
Office Specialty Co	Files	1 50			
			38 16		
Mrs. Hubertus	Postage stamps	81 00			
G. N. W. Telegraph Co	Telegrams	22 70			
C. P. R. Telegraph	do	4 78			
			108 48		
Might's Directory Co	Directories	16 00			
W. J. Dickson	Almanacs	1 60			
			17 60		
Street Railway Co	Car tickets	24 00			
Canadian Express Co	Charges	2 80			
G. T. Railway Co	Freight charges	50			
			27 30		
Brown Bros	Repairing caligraph		3 30		
A. G. Smyth	Services *re* customs returns, 1891		5 00		
D. Spence	Petty office expenses		3 06		
Sundry newspapers	Subscriptions and advertisements		20 45		
				223 35	
	Carried forward			213,002 48	

CIVIL GOVERNMENT.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			213,002 48	
	PROVINCIAL BOARD OF HEALTH.				
	SALARIES.				
J. J. Cassidy, M.D	Twelve months' salary as Chairman		400 00		
P. H. Bryce, M.D	do Secretary		2,000 00		
W. H. H. Mussen	do First Clerk		950 00		
G. A. Dorian	do Second Clerk		800 00		
J. J. Mackenzie	do Laboratory Assistant		1,100 00		
M. H. Smith	do Shorthand Writer		250 00		
Geo. Jones	do Messenger		144 00		
				5,644 00	
	EXPENSES.				
Warwick & Sons	Printing and binding	223 71			
L. K. Cameron	Stationery	117 96			
Wm. Barber & Bros	Paper	111 54			
C. Gripton	Rubber stamp	4 00			
			457 21		
G. M. Rose	Postage stamps	175 00			
G. N. W. Telegraph Co	Telegrams	41 06			
C. P. R. Telegraph	do	24 23			
Bell Telephone Co	Messages	95			
			241 24		
Williamson & Co	Books	9 00			
P. S. King & Son	do	15 18			
E. Steiger & Co	Periodicals, etc	28 47			
Friedlander & Sohn	do	14 03			
			66 68		
W. J. Dickson	Almanacs	40			
Might's Directory Co	Directories	10 00			
Railway and Steamboat Guide	Subscription	1 30			
			11 70		
F. Rae, M.D	Attendance and expenses, Board meetings	144 50			
E. E. Kitchen, M.D	do do	235 00			
H. E. Vaux, M.D	do do	280 20			
J. D. Macdonald, M.D	do do	167 00			
			826 70		

J. Stevens & Son	Apparatus	17 54			
Map and School Supply Co	do	18 63			
Eimer & Amend	do	54 55			
W. H. Sparrow	do	10 00			
Rice Lewis & Son	do	56 88			
Toronto Rubber Co	do	1 33			
W. Menzies	do	16 50			
James Iredale	do	6 00			
Goodyear Rubber Co	do	3 00			
Elliot & Co	Chemicals	16 70			
Lyman Bros. & Co	do	10 41			
Hope & Son	do	2 00			
			213 54		
A. J. Henderson	Repairing caligraph	85			
Brown Bros	do	50			
			1 35		
John Wanless & Co	Rent of offices	337 50			
Consumers' Gas Co	Gas	18 99			
Knickerbocker Ice Co	Ice	13 25			
John Milne & Co	Furnishings	19 45			
Michie & Co	do	60			
Elliot & Co	do	1 20			
W. Prowse	Carpentering, etc.	28 07			
Mrs. Jones	Office cleaning	103 00			
			522 06		
R. Bond	Cab hire	6 00			
C. Brown	do	6 50			
M. F. Hale & Co	do	5 00			
			17 50		
J. McDonell	Cartage	1 50			
Canadian Express Co	Charges	7 20			
Dominion Express Co	do	90			
C. W. Irwin	Duty charges	5 25			
			14 85		
F. G. Verral	Services copying		7 35		
J. J. Cassidy	Travelling expenses		10 50		
P. H. Bryce	Petty office expenses		10 20		
Sundry newspapers	Subscriptions		31 10		
				2,431 98	
	MISCELLANEOUS.				
	GAZETTE.				
Warwick & Sons	Printing		2,596 69		
	QUEEN'S PRINTER.				
	SALARIES.				
L. K. Cameron	Twelve months' salary as Queen's Printer	1,400 00			
George Thomas	do Assistant do	1,200 00			
	Carried forward	2,600 00	2,596 69	221,078 46	

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	2,600 00	2,596 69	221,078 46	
	EXPENSES.				
Warwick & Sons	Printing and binding	27 85			
L. K. Cameron	Stationery	46 61			
Might's Directory Co.	Directories	10 00			
Imrie & Graham	Legal chart	3 25			
G. M. Rose	Postage stamps	5 00			
G. N. W. Telegraph Co.	Telegrams	1 27			
Bell Telephone Co.	Message	25			
Canadian Express Co.	Charges	25			
Dominion Express Co.	do	45			
G. T. Railway Co.	Freight charges	1 44			
Rose Cartage Co.	Cartage	1 75			
M. F. Hale & Co.	Cab hire	1 50			
C. R. Notman	do	12 60			
T. P. Stewart	Services stock-taking	100 00			
W. W. Woods	do	100 00			
			2,912 22		
	INSPECTION OF REGISTRY OFFICES.				
E. F. B. Johnston	Twelve months' salary as Inspector	1,500 00			
do	Travelling expenses	398 72			
Warwick & Sons	Printing circulars	1 28			
			1,900 00		
	INSPECTION OF INSURANCE COMPANIES.				
	SALARIES.				
J. H. Hunter	Twelve months' salary as Inspector	2,800 00			
K. A. Chisholm	do Clerk	800 00			
W. J. Vale	Eight do do	533 33			

	EXPENSES.				
Warwick & Sons	Printing and binding	524 62			
W. Barber & Bros.	Paper	3 23			
L. K. Cameron	Stationery	230 90			
Brown Bros	Supplies for typewriter	3 30			
Mrs. Gripton	Rubber stamps	34 25			
Mrs. Hubertus	Postage stamps	46 50			
G. M. Rose	do	65 00			
G. N. W. Telegraph Co	Telegrams	6 35			
C. P. R. Telegraph	do	1 22			
Imrie & Graham	Legal chart, etc.	3 25			
Might's Directory Co	Directories	10 00			
W. J. Dickson	Almanacs	80			
Bradstreet's Commercial Agency	Subscription	16 66			
J. D. Warde	Joint Stock Manual	2 00			
G. F. Jelf	Law books	4 00			
Canadian Express Co	Charges	2 60			
Rose Cartage Co	Cartage	1 15			
J. I. McIntosh	Services as Stenographer	200 65			
Geo. Craig	do	16 00			
Office Specialty Co.	Desks and stools	45 00			
G. F. Bostwick	do	95 10			
P. O'Brien	Moving office furniture	4 50			
J. H. Hunter	Travelling expenses	185 58			
do	Petty office expenses	6 25			
Sundry newspapers	Subscriptions	31 00			
			5,673 24		
	SPECIAL SERVICES *re* INVESTIGATIONS.				
J. P. Macdonell	Twelve months' salary as Clerk		1,600 00		
				14,682 15	
	Total Civil Government				235,760 61
	LEGISLATION.				
	SALARIES.				
Hon. T. Ballantyne	Services as Speaker		1,250 00		
Charles Clarke	Twelve months' salary as Clerk of the House		1,800 00		
A. H. Sydere	do Assistant Clerk of House		1,500 00		
A. M. Dymond	do Law Clerk		700 00		
	Carried forward		5,250 00		235,760 61

LEGISLATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		5,250 00		235,760 61
	LEGISLATION.—*Continued.*				
	SALARIES.—*Continued.*				
J. M. Delamere	Twelve months' salary as Clerk and Postmaster		1,000 00		
Wm. Houston	do Librarian		1,600 00		
W. T. R. Preston	Services do		150 00		
Wm. Inglis	Twelve months' salary as Assistant Librarian		800 00		
L. K. Cameron	do Accountant		400 00		
F. J. Glackmeyer	do Sergeant-at-Arms		600 00		
P. O'Brien	do Housekeeper and Chief Messenger		700 00		
W. Kennedy	do Messenger		456 00		
M. Bailey	do do		550 00		
V. P. Fayle	do do		550 00		
B. McCoy	do do		450 00		
Alfred Gayfer	Eight months' salary as Fireman		333 00		
James Wells	Twelve do Night Watchman		500 00		
				13,333	
	SESSIONAL WRITERS, MESSENGERS, PAGES AND FIREMEN				
F. J. Joseph	Services as Writer		650 00		
R. A. Kent	do		500 00		
J. G. Rosseau	do		340 00		
W. Ledger	do		190 00		
W. H. Clarke	do		302 50		
J. Purkiss	do		112 00		
G. G. Keith	do		138 00		
W. S. Griffin	do		750 00		
Thomas Ballantyne	do		264 00		
G. W. Duncan	do		213 00		
S. J. Crosby	do		192 00		
D. Dunn	do		48 00		
E. Holmes	do		138 00		
M. C. Roblin	do		328 00		
D. B. Wylie	do		149 00		
E. Saunders	do		400 00		
A. Robertson	do		224 00		

E. J. Barton	do			146 00		
H. J. Spence	do			159 00		
W. W. Wood	do			50 00		
J. Gorrie	do			220 00		
H. W. Davies	do			122 00		
A. J. Rattray	do			75 00		
T. A. Martin	do			28 50		
T. P. Stewart	do			50 00		
R. Brodie	do			120 00		
F. F. Bretnell	do			126 00		
L. C. A. Casgrain	do			126 00		
E. Chartrand	do			126 00		
James De Cantillon	do			126 00		
John Devine	do			126 00		
J. J. Dixon	do			126 00		
J. M. Doyle	do			126 00		
A. R. Duff	do			126 00		
A. Fraser	do			126 00		
E. Kerr	do			126 00		
W. A. Kelsey	do			126 00		
E. R. Langs	do			118 00		
H. McCormick	do			120 00		
W. McFarlane	do			126 00		
A. McCrimmon	do			124 00		
H. MacIntyre	do			116 00		
T. H. Roberts	do			126 00		
F. W. Scott	do			126 00		
Joseph Shae	do			126 00		
J. F. Sullivan	do			124 00		
W. Wyllie	do			132 00		
E. Quesnal	do			126 00		
P. De Cantillon	do			118 00		
Alex. Brown	do			132 00		
Thomas George	do			110 00		
C. Livingston	do			118 00		
M. J. O'Neill	do			104 00		
M. Sullivan	do			88 00		
T. O'Brien	do			102 00		
A. Bowman	do			98 00		
B. J. Loughrin	do			114 00		
John Watson	do			98 00		
A. L. Leitch	do			100 00		
H. T. Smith	do			70 00		
J. D. Swanson	do			110 00		
James Clark	do			90 00		
W. C. Shaw	do			26 00		
J. M. Stratten	do			88 00		
John Logan	do			76 00		
Carried forward				10,301 00	13,333 00	235,760 61

LEGISLATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		10,301 00	13,333 00	235,760 61
	SESSIONAL WRITERS, MESSENGERS AND PAGES.—*Continued.*				
J. E. McKibbin	Services as Writer		42 00		
J. J. Kelso	Services as Reporter		348 60		
L. V. Percival	do		40 00		
R. Kilgour	Services as Messenger		367 50		
T. Newton	do		160 50		
M. Healey	do		157 50		
S. Ross	do		135 00		
W. Hanley	do		3 00		
S. Dunbar	do		99 00		
M. Halley	do		99 00		
L. A. McDonald	do		99 00		
M. McCarthy	do		99 00		
J. McCallum	do		99 00		
H. Brophy	do		99 00		
E. Wallace	do		99 00		
M. McCutcheon	do		99 00		
J. A. Welch	do		132 00		
James Mann	do		84 00		
John Martin	do		82 50		
W. Stewart	do		4 50		
W. W. Reid	do		75 00		
L. Weaver	do		70 50		
T. A. Marrin	do		70 50		
J. B. A. Richards	do		19 50		
J. Snook	do		19 50		
J. Chesterton	do		19 50		
W. O'Brien	Services as Page		49 50		
B. Sinneer	do		49 50		
W. McMaster	do		49 50		
H. Holmes	do		49 50		
J. Carroll	do		49 50		
D. Grainger	do		49 50		
H. Mann	do		49 50		
C. O'Brien	do		49 50		
V. McCarthy	do		49 50		

T. Hagarty	do		49 50		
A. Lynn	do		39 75		
A. Gayfer	Services as Fireman		90 00		
A. Smart	do		90 00		
J. Edmondstone	do		90 00		
R. J. Griffith	do		90 00		
				13,819 35	
	POSTAGE AND COST OF HOUSE POST OFFICE.				
G. M. Rose	Postage stamps	655 00			
Mrs. Hubertus	do	706 00			
H. C. Dixon	do	200 00			
Postmaster	Postage	13 44			
			1,574 44		
James Power	Carriage of mails	360 00			
George Bunker	Repairing stamp pad	2 50			
			362 50		
				1,936 94	
	STATIONERY, PRINTING AND BINDING.				
Warwick & Sons	Printing and binding		24,503 93		
Buntin, Reid & Co	Paper	378 80			
W. Barber & Bros	do	7,478 82			
L. K. Cameron	Stationery	2,333 42			
			10,191 04		
				34,694 97	
	PRINTING BILLS AND DISTRIBUTING STATUTES.				
Warwick & Sons	Printing		3,453 32		
L. K. Cameron	Stationery	76 13			
G. M. Rose	Postage stamps	75 00			
Canadian Express Co	Charges	315 58			
Dominion Express Co	do	51 17			
Rose Cartage Co	Cartage	16 30			
Hendrie & Co	do	1 14			
G. T. Railway Co	Freight charges	9 05			
C. P. Railway Co	do	2 31			
			546 68		
				4,000 00	
	LIBRARY.				
W. J. Gage & Co	Books	3 78			
J. E. Bryant Co	do	80 20			
Geo. Virtue	do	41 00			
Carswell & Co	do	66 90			
Grip Printing Co	do	91 00			
D. Appleton & Co	do	7 50			
	Carried forward	290 38		67,784 26	235,760 61

LEGISLATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	290 38		67,784 26	235,760 61
	LIBRARY.—*Continued.*				
W. Briggs	Books	1 20			
Williamson & Co	do	303 64			
E. G. Allen	do	54 04			
J. A. Donovan	do	100 00			
W. Kingsford	do	18 00			
F. Porter	do	62 45			
Rowsell & Hutchison	do	91 25			
J. P. McKenna	do	16 75			
J. J. Murphy	do	15 90			
W. T. James	do	2 00			
J. H. Hill	do	35			
H. E. Breakell	do	14 00			
H. Heaton	do	50			
C. W. Allan	do	1 75			
Delineator Co	do	1 00			
Geo. Dixon	do	4 00			
N. Brock	do	3 00			
W. Patterson	do	4 00			
W. F. Dyas	do	3 75			
W. V. Dawson	do	40 00			
Copp, Clark Co	do	13 62			
H. Berglin	do	5 00			
W. J. Whitby	do	8 40			
G. F. Jelf	do	6 00			
Canadian Railway News Co	do	4 00			
W. Gregg	do	2 00			
R. Tyson	do	50			
			1,067 48		
Imrie & Graham	Law list	2 60			
Gazette Printing Co	Subscription to law reports, etc	45 00			
Carswell & Co	do do	139 80			
Railway and Steamboat Guide	Subscription	5 20			
E. G. Allen	Periodicals, etc	211 92			
Ginn & Co	Magazines	9 00			
R. S. Bacon	Almanacs	5 00			
Might's Directory Co	Directories, etc	19 00			

W. H. Irwin & Co	do	4 50			
			441 42		
M. K. McGuinn	Messenger service	1 00			
Warwick & Sons	Stamping and binding	102 90			
H. C. Cassel	Filing clips	3 35			
C. W. Irwin	Duty charges	50			
G. T. Railway Co	Freight charges	90			
Canadian Express Co	Charges	24 24			
M. C. Roblin	To pay express charges, etc	76			
W. T. R. Preston	do	7 72			
W. Inglis	do	1 45			
Sundry newspapers	Subscriptions	76 00			
			218 82		
				1,727 72	
	INDEMNITY TO MEMBERS.				
L. K. Cameron	To pay members			56,699 80	
	EXPENSES.				
Dominion Express Co	Charges	45 75			
Canadian Express Co	do	219 61			
Rose Cartage Co	Cartage	87 25			
Verral Transfer Co	do	27 00			
			379 61		
G. N. W. Telegraph Co	Telegrams	20 08			
C. P. R. Telegraph	do	1 76			
Bell Telephone Co	Messages	41 31			
			63 15		
Rolph, Smith & Co	Die, etc	14 75			
L. K. Cameron	Stationery	480 92			
P. C. Allan	do	64 00			
R. Williams	Engrossing	20 00			
Alex. Gorrie	Writing cards	4 00			
F. Roger	File boards	5 00			
C. Gripton	Rubber stamps	17 75			
			606 42		
Might's Directory Co	Directories, etc	22 00			
W. J. Dickson	Almanacs	2 10			
Rand, McNally & Co	Atlas	3 50			
Imrie & Graham	Law list	2 00			
D. Battersby	Railway guide	75			
Railway and Steamboat Guide	Subscription	5 20			
J. Laidlaw	Books	4 00			
P. C. Allan	Periodicals, magazines, etc	330 05			
			369 60		
Rowsell & Hutchinson	100 copies Kingsford's History of Canada	300 00			
Times Printing Co	100 copies Sinclair's Liquor License Act	176 00			
	Carried forward			126,211 78	235,760 61

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			126,211 78	235,760 61
	EXPENSES.—*Continued.*				
Rowsell & Hutchison	100 copies Bibliography of Ontario	100 00			
Geo. Virtue	35 copies Life of Simcoe	122 50			
			698 50		
Stovel & Co	Official robes, etc	155 25			
Caldecott, Burton & Co	do	34 03			
Rice Lewis & Son	Cutlery	31 10			
			220 38		
Geo. Bengough	Use of typewriter		7 00		
R. Bond	Cab hire	38 00			
M. F. Hale & Co	do	41 25			
W. B. Hubbard	do	3 50			
C. R. Notman	do	10 25			
Street Railway Co	Car tickets	62 00			
			155 00		
R. A. Kent	Services *re* Consolidation of Municipal Act	225 00			
E. Saunders	do do and Assessment Act	400 00			
do	do do Election Act	125 00			
do	do preparing amendments to Revised Statutes	225 00			
			975 00		
A. Smart	Travelling expenses	4 00			
P. O'Brien	do	20 00			
			24 00		
J. Fletcher	Expenses *re* Private Bills Committee	21 25			
J. G. Rosseau	To pay expenses of witnesses *re* Public Accounts Committee	74 30			
F. Acland	Services as reporter do	21 50			
			117 05		
Lieut.-Col. Grasett	Police service	40 00			
Pay lists	Wages of fireman and messengers	1,459 75			
D. Flack	Messenger service	3 00			
			1,502 75		
F. Doane	Cab hire *re* visit of Members, Legislative Assembly to Upper Canada College	65 00			
J. Townsend	do do do	5 00			
			70 00		
W. H. Stone	Funeral expenses late Clerk of the House	390 00			
R. Bond	Cab hire do	31 00			
			421 00		

Ewing & Notman	Cab hire *re* funeral late H. E. Clarke, M.P.P		32 00		
W. Kennedy	Meals for telegraph operators, etc		147 65		
P. O'Brien	To pay express, telegrams, etc		2 10		
Sundry newspapers	Subscriptions and advertisements		594 77		
				6,385 98	
	Total Legislation				132,597 76
	ADMINISTRATION OF JUSTICE.				
	SUPREME COURT OF JUDICATURE.				
Hon. J. Hagarty	Chief Justice Appeal, allowance granted, 3 Vic., Cap. 5	1,000 00			
Hon. J. D. Armour	do Queen's Bench, do do	1,000 00			
Sir A. T. Galt	do Common Pleas, do do	1,000 00			
Hon. G. W. Burton	Judge, Appeal do do	1,000 00			
Hon. F. Osler	do Common Pleas, do do	1,000 00			
			5,000 00		
	SALARIES.				
Alex. Grant	Twelve months' salary as Registrar of Supreme Court and Court of Appeal	2,000 00			
R. G. Dalton	do Master in Chambers	4,000 00			
J. Winchester	Four do do	1,000 00			
F. Arnoldi	Twelve do Clerk	1,200 00			
A. Y. Blain	do Assistant Clerk	850 00			
A. B. G. Cull	do Entering Clerk	550 00			
Thos. Hodgins	do Master in Ordinary	3,900 00			
N. McLean	do Chief Clerk	1,800 00			
A. E. Bastedo	do Clerk and Shorthand Writer	800 00			
J. H. Thom	do Taxing officer	2,000 00			
S. B. Clark	Nine do do	1,200 00			
J. A. McAndrew	do do	1,200 00			
			20,500 00		
	EXPENSES.				
Warwick & Sons	Printing and binding	112 71			
Rowsell & Hutchison	Binding law reports	90			
L. K. Cameron	Stationery	261 15			
Oliver, Coate & Co	Stationery cabinet	8 75			
C. Gripton	Rubber stamps	19 50			
Carswell & Co	Law reports, etc	11 00			
	Carried forward	414 01	25,500 00		368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	414 01	25,500 00		368,358 37
	SUPREME COURT OF JUDICATURE.—*Continued.*				
	EXPENSES.—*Continued.*				
Rowsell & Hutchison	Law books	8 50			
Imrie & Graham	Legal charts and law lists	13 00			
G. M Rose	Postage stamps	16 00			
Mrs. Hubertus	do	14 50			
S. J. Crosby	Services as extra Clerk	70 00			
A. E. Bastedo	Service as Clerk and Shorthand Writer to Judges	150 00			
Rose Cartage Co.	Cartage	50			
			686 51		
				26,186 51	
	COURT OF APPEAL.				
	SALARIES.				
C. S. Grant	Twelve months' salary as Clerk	950 00			
Eli Oliver	do Usher and Messenger	600 00			
			1,550 00		
	EXPENSES.				
Warwick & Sons	Printing and binding	89 00			
L. K. Cameron	Stationery	33 25			
Warwick & Sons	Pens	2 00			
C. Gripton	Rubber stamps	6 00			
Rowsell & Hutchison	Law forms, etc	26 77			
Imrie & Graham	Legal chart, etc	3 25			
G. M. Rose	Postage stamps	42 00			
Rose Cartage Co.	Cartage	25			
J. L. Loughlin	Copying list of cases	2 00			
R. Ibbottson	Sharpening erasers	20			
Hon. F. Osler	Grant to Library	200 00			
A. Gran	Petty office expenses	10 95			
			415 67		
				1,965 67	

	HIGH COURT.					
	SALARIES.					
A. McDonell	Twelve months' salary as Clerk of Process		1,400 00			
C. A. Steward	do	Clerk	1,000 00			
G. B. Nicol	do	Clerk of Assize	1,200 00			
				3,600 00		
	EXPENSES.					
Warwick & Sons	Printing and binding		319 57			
L. K. Cameron	Stationery		73 95			
Rowsell & Hutchison	do		40			
Canadian Rubber Stamp Co.	Stamp and pad		1 35			
C. Gripton	Repairing seal		4 00			
G. M Rose	Postage stamps		23 00			
Mrs. Hubertus	do		5 00			
Imrie & Graham	Legal charts, etc		3 25			
Might's Directory Co	Directories		10 00			
Rose Cartage Co	Cartage		1 00			
G. B. Nicol	Petty office expenses		25 00			
				466 52		
					4,066 52	
	CHANCERY DIVISION.					
	SALARIES.					
G. S. Holmsted	Twelve months' salary as Registrar and Judgment Clerk		2,100 00			
A. F. Maclean	do	Assistant do	1,600 00			
W. O'Neill	do	Entering Clerk	750 00			
G. M. Lee	do	Clerk of Records and Writs	1,600 00			
G. C. Sellery	do	Clerk	500 00			
A. MacGregor	do	Junior Clerk	400 00			
J. G. O'Donoghue	Four do	Usher	160 00			
Robert Parkes	Eight do	do	400 00			
D. W. Sutherland	Twelve do	Messenger	400 00			
Mrs. Sutherland	do	Housekeeper	300 00			
Geo. Smith	do	Assistant Housekeeper	300 00			
J. L. Robinson	do	Surrogate Clerk	2,000 00			
F. A. Robinson	do	Clerk	750 00			
				11,260 00		
	EXPENSES.					
Warwick & Sons	Printing and binding		322 40			
L. K. Cameron	Stationery		114 28			
C. Gripton	Rubber stamps, etc		10 50			
I. C. Fell & Co	Repairing seal, etc		1 00			
	Carried forward		448 18	11,260 00	32,218 70	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	448 18	11,260 00	32,218 70	368,358 37
	CHANCERY DIVISION.—*Continued.*				
	EXPENSES.—*Continued.*				
Imrie & Graham	Legal charts and law lists	11 00			
Might's Directory Co	Directory	5 00			
J. K. Low	Service as extra Clerk	510 00			
A. R. Duff	do	386 00			
W. J. Cotton	do	70 00			
James Gorrie	do Acting Messenger	40 96			
Rose Cartage Co	Cartage	75			
G. S. Holmsted	Grant to Library	200 00			
do	Petty office expenses	14 10			
			1,685 99		
				12,945 99	
	QUEEN'S BENCH DIVISION.				
	SALARIES.				
J. S. Cartwright	Twelve months' salary as Registrar	2,000 00			
P. J. Brown	do Clerk	1,500 00			
C. O. Strange	do do	1,050 00			
M. B. Black	do do	600 00			
Geo. Hilliar	do Housekeeper and Messenger	650 00			
James Rollo	Four do Usher and Crier	53 00			
C. McKenzie	Three do Message Youth	52 00			
F. Bulmer	Nine do do	187 50			
R. Lawson	Twelve do Messenger	450 00			
			6,542 50		
	EXPENSES.				
Warwick & Sons	Printing and binding	62 57			
L. K. Cameron	Stationery	119 73			
C. Gripton	Rubber stamp	6 00			
Mrs. Hubertus	Postage stamps	30 00			
Might's Directory Co	Directory	5 00			

Imrie & Graham	Legal chart and law list	4 50			
A. R. Duff	Services as extra Clerk	26 00			
Thomas Rumney	do office cleaning	330 00			
M. Hilliar	do do	209 00			
Rose Cartage Co.	Cartage	1 50			
Canadian Express Co	Charges	5 70			
Dominion Express Co	do	3 00			
Hon. F. Osler	Grant to Library	200 00			
			1,003 00		
				7,545 50	
	COMMON PLEAS DIVISION.				
	Salaries.				
M. B. Jackson	Twelve months' salary as Registrar	2,500 00			
M. J. Macnamara	do Clerk	1,300 00			
A. J. Elliott	do Second Clerk	900 00			
James Alexander	do Usher and Messenger	575 00			
			5,275 00		
	Expenses.				
Warwick & Sons	Printing and binding	58 21			
L. K. Cameron	Stationery	46 56			
C. Gripton	Seal, press, etc	12 00			
Might's Directory Co	Directory	5 00			
Imrie & Graham	Legal chart and law list	3 25			
S. J. Crosby	Services as extra Clerk	167 50			
Mrs. Austin	do	63 00			
Rose Cartage Co.	Cartage	50			
M. B. Jackson	Travelling expenses	110 00			
do	Petty office expenses	25 00			
Hon. F. Osler	Grant to Library	200 00			
			691 02		
				5,966 02	
	SURROGATE JUDGES AND LOCAL MASTERS.				
His Honour—					
Judge Elliott	Twelve months' commutation as Surrogate Judge		1,000 00		
do Ardagh	do do		585 00		
do McDonald	do do		600 00		
do Burnham	do do		540 00		
do Benson	do do		840 00		
do Morson	do do		666 00		
do do	Arrears from July 1st, 1891		333 00		
do Deacon	Twelve months' commutation as Surrogate Judge		264 00		
do Kingsmill	do do		408 00		
	Carried forward		5,236 00	58,676 21	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		5,236 00	58,676 21	368,358 37
	SURROGATE JUDGES AND LOCAL MASTERS.—*Continued.*				
His Honour—					
Judge Bell	Ten months' commutation as Surrogate Judge		375 00		
do Scott	Twelve do do		240 00		
do Price	do do		752 00		
do Senkler	do do		566 00		
do Dean	do do		500 00		
do Jones	do do		428 00		
do McCarthy	do do		168 00		
do Lacourse	do do		704 00		
do Ross	do do		500 00		
do Wilkison	do do		400 00		
do Lazier	do do		500 00		
do Toms	do do		793 00		
do Baxter	Seven do do		280 00		
do Morgan	Allowance out of surplus Surrogate fees		666 00		
do Ketchum	do do		95 83		
do Davis	do do		400 00		
do Muir	do do		64 50		
do Lacourse	Twelve months' commutation as Local Master		591 00		
do Dean	do do		900 00		
do Jones	do do		577 00		
S. Malcolmson	do do		1,250 00		
J. E. O'Reilly	do do		3,500 00		
R. O'Hara	do do		1,600 00		
S. S. Lazier	do do		3,000 00		
W. A. McLean	do do		850 00		
				24,936 33	
	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.				
	CROWN COUNSEL PROSECUTIONS.				
G. W. Wells	Services, Fall Assises, 1891, Elgin		32 00		
J. Maxwell	do do Prescott and Russell		10 00		
D. B. Simpson	do do Victoria		142 00		
C. W. Colter	do do Wellington		26 00		
R. Lees	do Winter Assizes, 1891, Carleton		32 00		

R. C. Clute	do	do	York		409 00	
G. W. Wells	do	Spring Assizes, 1892,	Brant		76 50	
do	do	do	Bruce		20 00	
J. K. Kerr	do	do	Carleton		340 00	
E. Myers	do	do	Dufferin		40 00	
J. V. Teetzel	do	do	Elgin		20 25	
C. W. Colter	do	do	Essex		100 00	
J. W. Whiting	do	do	Frontenac		10 00	
A Frost	do	do	Grey		114 00	
N. G. Bigelow	do	do	Haldimand		30 00	
W. Kerr	do	do	Hastings		140 00	
M. G. Cameron	do	do	Halton		20 00	
F. Love	do	do	Huron		61 00	
John King	do	do	Kent		204 50	
H. Carscallen	do	do	Lambton		111 00	
H. M. Deroche	do	do	Lanark		20 00	
D. B. Maclennan	do	do	Leeds and Grenville		90 00	
D. B. Simpson	do	do	Lennox and Addington		20 00	
W. M. German	do	do	Lincoln		20 00	
W. Lount	do	do	Middlesex		146 00	
A. S. Ball	do	do	Norfolk		20 00	
R. C. Clute	do	do	Northumberland and Durham		247 00	
H. O'Leary	do	do	Ontario		20 00	
F. R Ball	do	do	Oxford		10 00	
W H. P. Clement	do	do	Peel		123 00	
C. Macdougall	do	do	Perth		20 00	
H. O'Leary	do	do	Peterborough		96 00	
A. F. McIntyre	do	do	Prescott and Russell		43 00	
J. A. Barron	do	do	Prince Edward		70 00	
R. J. Dowdall	do	do	Renfrew		23 00	
J. V. Teetzel	do	do	Simcoe		41 25	
H. M. Deroche	do	do	Stormont, Dundas and Glengarry		81 00	
D. G. Macdonell	do	do	Victoria		20 00	
C. Macdougall	do	do	Waterloo		158 00	
N. G. Bigelow	do	do	Welland		106 00	
H. Carscallen	do	do	Wellington		20 00	
do	do	do	Wentworth		400 00	
P. D. Crerar	do	do	do		200 00	
John Crerar	do	do	do		670 00	
W. R. Riddell	do	do	York		187 78	
W. H. P. Clement	do	Summer Assizes 1892,	Algoma		20 00	
T. Johnston	do	do	Muskoka		58 00	
do	do	do	Parry Sound		20 00	
R. C. Clute	do	do	Thunder Bay		486 20	
A. R. Lewis	do	do	do		60 00	
W. R. Riddell	do	do	York		316 47	
J. V. Teetzel	do	Fall Assizes, 1892,	Brant		20 50	
C. W. Colter	do	do	Bruce		116 00	
W. H. W. McFadden	do	do	Dufferin		26 00	
			Carried forward		5,913 45	83,612 54	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	.....	5,913 45	83,612 54	368,358 37
	MISCELLANEOUS, CIVIL AND CRIMINAL JUSTICE.—*Con.*				
	CROWN COUNSEL PROSECUTIONS.—*Continued.*				
F. Love	Services, Fall Assizes, 1892 Elgin		20 00		
W. R. Riddell	do do Essex		243 74		
J. L. Whiting	do do Frontenac		10 00		
A. Frost	do do Grey		76 00		
W. R. Riddell	do do Haldimand		37 00		
W. H. P. Clement	do do Halton		48 00		
W. Kerr	do do Hastings		131 00		
J. F. Lister	do do Kent		243 00		
W. Lount	do do Lambton		140 00		
C. E. Widdifield	do do Lennox and Addington		38 00		
D. B. Maclennan	do do Leeds and Grenville		28 00		
W. M. German	do do Lincoln		62 00		
C. Macdougall	do do Middlesex		180 00		
John King	do do Norfolk		58 90		
R. C. Clute	do do Northumberland and Durham		206 00		
H. M. Deroche	do do Ontario		122 00		
F. R. Ball	do do Oxford		88 00		
H. Carscallen	do do Peel		82 00		
do	do do Perth		20 00		
J. Idington	do do do		20 00		
D. B. Maclennan	do do Prescott and Russell		32 00		
H. M. Deroche	do do Prince Edward		78 00		
R. J. Dowdall	do do Renfrew		38 00		
J. V. Teetzel	do do Simcoe		58 85		
Hon. R. W. Scott	do do Stormont, Dundas and Glengarry		156 30		
M. G. Cameron	do do Victoria		156 70		
A. S. Ball	do do Waterloo		20 00		
G. W. Wells	do do Wellington		111 50		
J. Crerar	do do Wentworth		84 00		
R. C. Clute	do do York		380 00		
				8,882 44	

	GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES.				
W. S. Campbell	On account of expenditure as Treasurer, County of Brant.				
	December quarter, 1891	1,875 24			
	March quarter, 1892	557 97			
	June quarter, 1892	1,321 50			
	September quarter, 1892	537 11			
			4,291 82		
N. Robertson	On account of expenditure as Treasurer, County of Bruce,				
	December quarter, 1891	1,958 50			
	March quarter, 1892	527 34			
	June quarter, 1892	738 41			
	September quarter, 1892	426 12			
			3,650 37		
Wm. Cowan	On account of expenditure as Treasurer, County of Carleton,				
	December quarter, 1891	1,367 99			
	March quarter, 1892	1,087 02			
	June quarter, 1892	1,513 47			
	September quarter, 1892	1,033 34			
			5,001 82		
R. T. Haun	On account of expenditure as Treasurer, County of Dufferin,				
	December quarter, 1891	437 88			
	March quarter, 1892	431 89			
	June quarter, 1892	140 39			
	September quarter, 1892	186 38			
			1,196 54		
J. McCausland	On account of expenditure as Treasurer, County of Elgin,				
	September quarter, 1891	538 13			
	December quarter, 1891	596 85			
	March quarter, 1892	696 78			
	June quarter, 1892	1,227 84			
	September quarter, 1892	679 30			
			3,738 90		
H. Morand	On account of expenditure as Treasurer, County of Essex,				
	December quarter, 1891	1,043 87			
	March quarter, 1892	724 21			
	June quarter, 1892	1,537 88			
	September quarter, 1892	1,038 36			
			4,344 32		
T. F. VanLuven	On account of expenditure as Treasurer, County of Frontenac,				
	September quarter, 1891	710 95			
	December quarter, 1891	856 69			
	March quarter, 1892	450 92			
			2,018 56		
S. J. Parker	On account of expenditure as Treasurer, County of Grey,				
	December quarter, 1891	738 15			
	March quarter, 1892	247 99			
	June quarter, 1892	1,072 37			
	September quarter, 1892	453 63			
			2,512 14		
	Carried forward		26,754 47	92,494 98	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		26,754 47	92,494 98	368,358 37
	GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES—*Con.*				
A. A. Davis	On account of expenditure as Treasurer, County of Haldimand,				
	September quarter, 1891	609 19			
	December quarter, 1891	1,006 84			
	March quarter, 1892	854 96			
	June quarter, 1892	1,104 69			
			3,575 68		
D. W. Campbell	On account of expenditure as Treasurer, County of Halton,				
	December quarter, 1891	491 12			
	March quarter, 1892	305 42			
	June quarter, 1892	638 89			
	September quarter, 1892	624 87			
			2,060 30		
Thos. Wills	On account of expenditure as Treasurer, County of Hastings,				
	June quarter, 1891	1,534 56			
	September quarter, 1891	729 77			
	December quarter, 1891	1,187 20			
	March quarter, 1892	1,047 36			
			4,498 89		
Wm. Holmes	On account of expenditure as Treasurer, County of Huron,				
	December quarter, 1891	647 57			
	March quarter, 1892	653 36			
	June quarter, 1892	420 33			
	September quarter, 1892	325 16			
			2,046 42		
A. L. Shamblean	On account of expenditure as Treasurer, County of Kent,				
	December quarter, 1891	919 31			
	March quarter, 1892	654 39			
	June quarter, 1892	1,139 79			
	September quarter, 1892	1,113 99			
			3,827 48		
Hon. A. Vidal	On account of expenditure as Treasurer, County of Lambton,				
	December quarter, 1891	896 99			
	March quarter, 1892	720 50			
E. A. Vidal	June quarter, 1892	674 97			
	September quarter, 1892	689 85			
			2,982 31		

John Coad	On account of expenditure as Treasurer, County of Lanark,				
	December quarter, 1891	331 77			
	March quarter, 1892	187 80			
	June quarter, 1892	414 32			
	September quarter, 1892	391 90			
			1,328 79		
D. Mansell	On account of expenditure as Treasurer, Counties of Leeds and Grenville,				
	December quarter, 1891	629 78			
	March quarter, 1892	513 70			
	June quarter, 1892	532 96			
	September quarter, 1892	448 86			
			2,125 30		
J. M. Parrott	On account of expenditure as Treasurer, Counties of Lennox & Addington,				
	September quarter, 1891	190 61			
	December quarter, 1891	383 54			
Irivne Parks	March quarter, 1892	190 80			
	June quarter, 1892	239 56			
	September quarter, 1892	156 24			
			1,160 75		
Thos. Keyes	On account of expenditure as Treasurer, County of Lincoln,				
	December quarter, 1891	349 95			
	March quarter, 1892	684 17			
	June quarter, 1892	578 40			
	September quarter, 1892	455 30			
			2,067 82		
A. McEvoy	On account of expenditure as Treasurer, County of Middlesex,				
	September quarter, 1891	1,527 92			
	December quarter, 1891	2,493 93			
	March quarter, 1892	1,286 83			
	June quarter, 1892	2,616 99			
	September quarter, 1892	1,302 95			
			9,228 62		
T. W. Walsh	On account of expenditure as Treasurer, County of Norfolk,				
	December quarter, 1891	682 70			
	March quarter, 1892	57 00			
	June quarter, 1892	479 07			
	September quarter, 1892	332 44			
			1,551 21		
N. F. Macnachtan	On account of expenditure as Treasurer, Counties of Northumberland and Durham,				
	December quarter, 1891	1,315 40			
	March quarter, 1892	471 19			
	June quarter, 1892	1,370 77			
	September quarter, 1892	444 30			
			3,601 66		
D. McKay	On account of expenditure as Treasurer, County of Ontario,				
	June quarter, 1891	570 33			
	September quarter, 1891	424 31			
	December quarter, 1891	546 06			
	March quarter, 1892	477 35			
			2,018 05		
	Carried forward		68,827 75	92,494 98	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

NAME TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	.....	68,827 75	92,494 98	368,358 37
	GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES.—*Con.*				
H. P. Brown	On account of expenditure as Treasurer, County of Oxford,				
	December quarter, 1891.....	585 69			
	March quarter, 1892	265 29			
	June quarter, 1892.....	486 21			
	September quarter, 1892	1,698 18			
			3,035 37		
G. Graham.....	On account of expenditure as Treasurer, County of Peel,				
	December quarter, 1891.....	549 04			
	March quarter, 1892	680 83			
	June quarter, 1892	581 03			
	September quarter, 1892	574 51			
			2,385 41		
A. Monteith	On account of expenditure as Treasurer, County of Perth,				
	December quarter, 1891.....	995 47			
	March quarter, 1892	453 30			
	June quarter, 1892.....	683 64			
	September quarter, 1892	413 54			
			2,545 95		
E. Pearse	On account of expenditure as Treasurer, County of Peterborough,				
	December quarter, 1891.....	622 07			
	March quarter, 1892	293 35			
	June quarter, 1892	737 69			
	September quarter, 1892	399 59			
			2,052 70		
John Fraser	On account of expenditure as Treasurer, Counties of Prescott and Russell,				
	September quarter, 1891	336 36			
	December quarter, 1891	488 05			
	March quarter, 1892	385 54			
			1,209 95		
D. L. Bongard	On account of expenditure as Treasurer, County of Prince Edward,				
	December quarter, 1891	445 04			
	March quarter, 1892	305 02			
	June quarter, 1892.....	324 63			
	September quarter, 1892	233 01			
			1,307 70		

A. Morris	On account of expenditure as Treasurer,	County of Renfrew,				
		December quarter, 1891	352 98			
		March quarter, 1892	604 40			
		June quarter, 1892	820 76			
		September quarter, 1892	747 87			
				2,526 01		
S. J. Sanford	On account of expenditure as Treasurer,	County of Simcoe,				
		December quarter, 1891	1,319 78			
		March quarter, 1892	1,202 77			
				2,522 55		
C. J. Mattice	On account of expenditure as Treasurer, Glengarry,	Counties of Stormont, Dundas and				
		December quarter, 1891	771 54			
		March quarter, 1892	658 88			
		June quarter, 1892	396 13			
		September quarter, 1892	491 35			
				2,317 90		
T. Matchett	On account of expenditure as Treasurer,	County of Victoria,				
		September quarter, 1891	361 58			
		December quarter, 1891	694 97			
		March quarter, 1892	185 82			
		June quarter, 1892	972 68			
		September quarter, 1892	376 75			
				2,591 80		
I. D. Bowman	On account of expenditure as Treasurer,	County of Waterloo,				
		December quarter, 1891	625 97			
		March quarter, 1892	588 51			
		June quarter, 1892	1,116 03			
		September quarter, 1892	413 38			
				2,743 89		
G. L. Hobson	On account of expenditure as Treasurer,	County of Welland,				
		December quarter, 1891	621 80			
		March quarter, 1892	451 78			
		June quarter, 1892	412 89			
		September quarter, 1892	473 27			
				1,959 74		
W. Reynolds	On account of expenditure as Treasurer,	County of Wellington,				
		December quarter, 1891	952 27			
		March quarter, 1892	380 76			
		June quarter, 1892	923 15			
		September quarter, 1892	743 35			
				2,999 53		
. Stoc	On account of expenditure as Treasurer,	County of Wentworth,				
		December quarter, 1891	1,545 19			
		March quarter, 1892	1,922 66			
		June quarter, 1892	1,128 67			
		September quarter, 1892	1,331 07			
				5,927 59		
	Carried forward			104,953 84	92,494 98	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	.....	104,953 84	92,494 98	368,358 37
	GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES.—*Con.*				
J. K. Macdonald	On account of expenditure as Treasurer, County of York,				
	September quarter, 1891	3,560 29			
	December quarter, 1891	5,300 40			
	March quarter, 1892	6,250 61			
	June quarter, 1892	5,696 46			
	September quarter, 1892	4,358 49			
R. T. Coady	On account of expenditure as Treasurer, City of Toronto,		25,166 25		
	September quarter, 1891	785 69			
	December quarter, 1891	2,841 78			
	March quarter, 1892	1,050 13			
	June quarter, 1892	1,215 42			
John English	Twelve months' salary as Provincial Bailiff	1,200 00	5,893 02		
do	Disbursements *re* transfer of prisoners	3,200 00			
P. Simser	do do	61 90			
Mercer Reformatory	Clothing for discharged prisoners	14 49	4,461 90		
Reformatory for Boys	do	717 50			
Alexander & Anderson	do	715 65			
Thomas Dunnett & Co	do	79 00			
C. P. Industries	do	1,624 03			
H. Moloney & Co	do	8 80			
N. Courtemanche	do	19 25			
J. & J. Lugsdin	do	193 25			
McMaster & Co	do	217 74			
Hyslop, Caulfield & Co	do	52 50			
W. M. Thompson	do	26 50			
A. A. Allan & Co	do	3 00			
Gordon McKay & Co	do	15 00			
F. Hall & Son	do	1 00			
J. R. Forsyth	*Re* Administration of Justice Bruce	19 75	3,687 71		
J. E. Rogers	do Dufferin	19 50			
do	do Durham	22 70			
W. Greer	do Glengarry	12 50			

J. E. Rogers	do	Grey	107 00			
C. A. Fitch	do	Huron	1 00			
J. W. Murray	do	do	167 85			
W. Greer	do	Hastings	43 25			
T. S. Carman	do	do	14 00			
H. Carre	do	do	15 00			
J. E. Rogers	do	do	38 30			
J. W. Murray	do	do	71 30			
W. Greer	do	Halton	83 25			
J. W. Murray	do	do	2,032 43			
Bank of Commerce	do	do	8 14			
A. E. Irving	do	Haldimand	30 00			
J. V. Teetzel	do	do	50 00			
J. E. Rogers	do	do	12 00			
J. W. Murray	do	do	32 50			
W. Greer	do	do	92 30			
T. W. McKee	do	Kent	209 48			
J. Bernaby	do	do	99 05			
C. A. Hovey	do	do	65 00			
W. Greer	do	do	44 35			
J. E. Rogers	do	do	177 13			
W. Burns	do	do	22 10			
W. Robertson	do	do	20 00			
J. W. Murray	do	do	38 65			
O. M. Springer	do	do	15 00			
J. McKeown	do	Lincoln	141 81			
W. Greer	do	do	27 30			
J. E. Rogers	do	do	164 55			
do	do	Lambton	490 58			
J. W. Murray	do	do	57 60			
W. Greer	do	do	63 10			
J. W. Murray	do	Lanark	33 60			
W. Greer	do	Leeds and Grenville	93 40			
J. W. Murray	do	Middlesex	93 90			
do	do	Norfolk	433 90			
W. H. Ellis, M.B	do	do	75 00			
J. E. Rogers	do	Northumberland	22 35			
W. Greer	do	do	67 05			
J. W. Murray	do	Oxford	70 35			
J. E. Rogers	do	Ontario	60 20			
J. W. Murray	do	Perth	1,276 75			
J. E. Rogers	do	Peel	18 50			
do	do	do	10 40			
Dr. Ford	do	Peterborough	23 00			
J. E. Rogers	do	do	32 80			
W. C. Irving	do	Renfrew	52 00			
Thomas Heys	do	Simcoe	25 00			
		Carried forward	6,896 67	144,162 72	92,494 98	368,358 37

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69

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	6,896 67	144,162 72	92,494 98	368,358 37
	GENERAL ADMINISTRATION OF JUSTICE IN COUNTIES—*Con.*				
J. E. Rogers	*Re* Administration of Justice Simcoe	252 60			
W. Greer	do Stormont	55 35			
J. E. Rogers	do Victoria	8 35			
S Nevison	do do	106 96			
R. Tyson	do do	5 15			
J. R. Forsyth	do do	6 09			
W. Greer	do do	71 35			
do	do Wentworth	698 75			
A. M. Rosebrugh, M.D	do do	60 00			
J. W. Rosebrugh, M.D	do do	20 00			
A. E. Malloch, M.D	do do	20 00			
S. H. Ghent	do do	50 00			
W. Greer	do Wellington	511 60			
J. E. Rogers	do do	28 10			
J. W. Murray	do Waterloo	262 85			
T. D. Cowper	do Welland	5 00			
J. E. Rogers	do do	26 30			
A. E. Irving	do do	30 00			
J. W. Murray	do do	14 75			
W. H. Ellis, M.D	do York	75 00			
M. Basso	do do	20 00			
G. N. W. Telegraph Co	do do	9 42			
W. H. Cross	do do	107 23			
E. F. B. Johnston	do do	63 64			
W. Greer	do do	258 00			
J. E. Rogers	do do	751 75			
T. W. McKee	do do	186 55			
J. W. Murray	do do	458 65			
			11,060 11		
Warwick & Sons	Gaol registers	122 94			
J. E. Rogers	Stationery, postage, etc	12 20			
J. W. Murray	Postage stamps and rent of box	6 50			
J. E. Rogers	Revolver	15 50			
Lugsdin & Barnett	Bailiff's club bag, etc	5 50			
			162 64		
Thomas Quinn	To pay carriage of prisoners	2,000 00			

R. W. Laird	do	200 00			
W. P. Band	do	500 00			
			2,700 00		
				158,085 47	
	INSPECTION OF OFFICES UNDER JUDICATURE ACT.				
J. Winchester	Eight months' salary as Inspector	1,866 00			
J. Fleming	Four do	800 00			
W. F. Grant	Twelve do Clerk	1,000 00			
Warwick & Sons	Printing and binding	74 66			
W. Barber & Bros.	Paper	24 60			
L. K. Cameron	Stationery	57 25			
G. M. Rose	Postage stamps	80 00			
Mrs. Hubertus	do	20 00			
Imrie & Graham	Legal chart and law list	3 25			
Rose Cartage Co.	Cartage	1 00			
J. Winchester	Travelling expenses	200 00			
J. Fleming	do	40 30			
			4,167 06		
	SPECIAL SERVICES.				
J. W. Murray	Twelve months' salary as Chief Detective	1,650 00			
J. E. Rogers	do Detective	1,350 00			
W. Greer	Nine do do	750 00			
J. W. Murray	Allowance for clothing	75 00			
J. E. Rogers	do	75 00			
			3,900 00		
	INSPECTION OF DIVISION COURTS.				
Joseph Dickey	Twelve months' salary as Inspector	1,800 00			
J. B. Macdonald	do Clerk	1,000 00			
W. H. Higgins	do do	1,000 00			
E. Jury	Services as Messenger	8 00			
Warwick & Sons	Printing and binding	106 47			
W. Barber & Bros.	Paper	24 26			
L. K. Cameron	Stationery	74 90			
G. M. Rose	Postage stamps	50 00			
Mrs. Hubertus	do	50 00			
Imrie & Graham	Law chart, etc	3 25			
W. J. Dickson	Almanacs	60			
Might's Directory Co.	Directories	11 00			
C. P. R. Telegraph	Messages	6 07			
G. N. W. do Co	do	10 76			
J. Dickey	Travelling expenses	646 09			
Globe Printing Co.	Subscription	5 00			
W. H. Higgins	Petty office expenses	15 00			
			4,811 40		
	Carried forward		12,878 46	250,580 45	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	...	12,878 46	250,580 45	368,358 37
	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.—*Con.*				
	SHERIFFS' FEES, Etc.				
W. Sutton	Attendance at Court as Sheriff, County of Bruce	30 30			
W. Watt, jr	do Brant	16 80			
J. Sweetland	do Carleton	63 40			
J. C. Iler	do Essex	130 70			
D. Brown	do Elgin	61 80			
W. Ferguson	do Frontenac	87 40			
C. H. Moore	do Grey	31 50			
W. Hope	do Hastings	67 30			
R. Gibbons	do Huron	50 30			
J. Mercer	do Kent	59 80			
O. T. Pruyn	do Lennox and Addington	12 00			
T. C. Dawson	do Lincoln	57 30			
James Smart	do Leeds and Grenville	84 90			
W. Glass	do Middlesex	356 40			
Estate late E. Deedes	do Norfolk	12 70			
J. Jackson	do Norfolk	47 00			
J. O. Proctor	do Northumberland and Durham	11 00			
J. Brady	do Oxford	32 60			
J. F. Paxton	do Ontario	63 60			
J. Hossie	do Perth	45 70			
R. Broddy	do Peel	12 20			
J. Gillespie	do Prince Edward	5 00			
James A. Hall	do Peterborough	29 90			
W. Moffatt	do Renfrew	19 20			
D. E. McIntyre	do Stormont, Dundas and Glengarry	48 00			
O. J. Phelps	do Simcoe	124 70			
J. McLennan	do Victoria	19 90			
R. McKim	do Wellington	38 90			
J. Smith	do Welland	11 50			
M. Springer	do Waterloo	10 00			
Hon. A. McKellar	do Wentworth	192 50			

J. H. Widdifield	do	York	671 00			
P. Mowat	do	Toronto	667 52			
W. Rubidge	Attendance at Court as D. C. C. & P. County of	Brant	44 50			
W. Gunn	do	Bruce	32 46			
J. P. Featherstone	do	Carleton	84 80			
J. McLaren	do	Dufferin	32 24			
F. R. Marcon	do	Essex	60 45			
D. McLaws	do	Elgin	44 15			
A. McGill	do	Frontenac	24 28			
G. Inglis	do	Grey	16 25			
W. A. Lawrence	do	Halton	12 86			
J. Mitchell	do	Haldimand	24 50			
D. McDonald	do	Huron	28 74			
A. G. Northrup	do	Hastings	116 48			
W. A. Campbell	do	Kent	48 50			
W. P. Deroche	do	Lennox and Addington	28 51			
S. Reynolds	do	Leeds and Grenville	24 29			
W. R. Gemmill	do	Lambton	40 75			
C. Rice	do	Lanark	12 26			
J. Clench	do	Lincoln	24 40			
J. Macbeth	do	Middlesex	80 30			
C. C. Rapelje	do	Norfolk	24 64			
J. Fisher	do	Northumberland & Durham	108 50			
James Canfield	do	Oxford	32 27			
L. T. Barclay	do	Ontario	8 12			
James McFadden	do	Perth	28 32			
J. Maloney	do	Peterborough	68 40			
J. Twigg	do	Prince Edward	48 50			
J. Fraser	do	Prescott and Russell	20 29			
J. Austin	do	Peel	36 51			
A. Thomson	do	Renfrew	16 50			
J. Stevenson	do	Simcoe	76 50			
J. A. McDonald	do	Stormont, Dundas & Glengarry	44 21			
W. Grace	do	Victoria	53 00			
J. McDougall	do	Waterloo	48 30			
S. H. Ghent	do	Wentworth	144 18			
James Hough	do	Wellington	16 20			
I. P. Willson	do	Welland	16 40			
T. A. P. Towers	do	Algoma	12 14			
Isaac Huber	do	Muskoka	8 14			
R. H. Stewart	do	Parry Sound	4 11			
James Meek	do	Thunder Bay	25 08			
P. J. Brown	do Acting Clerk of Assize,	Wellington	4 00			
P. J. Brown	do do	York	68 00			
J. T. Jones	do do	do	8 00			
F. C. Moffatt	do do	do	24 00			
R. C. Palmer	do Crier	Lambton	1 20			
				4,899 05		
	Carried forward			17,777 51	250,580 45	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		17,777 51	250,580 45	368,358 37
	MISCELLANEOUS, CRIMINAL AND CIVIL JUSTICE.—*Con.*				
	SEALS AND OTHER CONTINGENCIES.				
Rolph, Smith & Co	Division Court seals, etc	13 10			
Estate of S. R. Lister	do	4 00			
Hart & Riddell	do	6 00			
Hart & Co	Books and forms, 4th Division Court, Algoma	24 47			
Mrs. Gripton	Punches for Surrogate Judges, Goderich and Brampton	9 00			
Barclay, Clark & Co.	Seal for Clerk of the Peace, Algoma	5 65			
L. K. Cameron	Letter press, Registrar Parry Sound	6 00			
do	Punch for Local Registrar, Essex	2 50			
do	Office seal, D. C. C. & P., Huron	5 35			
do	Repairing punch	80			
J. R. Cotter	Services and expenses taking possession of 9th Division Court, Simcoe	7 75			
Ira Lewis	do do 12th do Huron	13 78			
Thomas Dixon	do do 5th do do	32 55			
Warwick & Sons	Printing rules of Surrogate Court	54 60			
Canadian Express Co	Charges on seal	35			
			185 90		
	LITIGATION OF CONSTITUTIONAL QUESTIONS.				
Æ. Irving	Legal services *re* validity of Assignment and Reference Act	235 00			
do	do appeal Local Option Act	50 00			
do	do Queen's Counsel, etc	500 00			
do	do opposing issue certiorari Reg. *vs.* Johnson	5 00			
J. R. Forsyth	Service as Stenographer	180 00			
Moss, Barwick & Franks	Legal services *re* Commissioners N. F. Park *vs.* Howard	690 00			
Kingsmill, Symons & Saunders	Taxed costs do do	72 79			
Holland Bros	Copying do do	5 50			
C. R. Masters	Copy of judgment, Maritime Bank *vs.* Receiver-General, New Brunswick	3 60			
Warwick & Sons	Printing, etc., *re* appeal Queen's Counsel	125 78			
do	do powers of Provincial Legislatures	51 95			
G. Bengough	Rent of typewriter	32 50			
J. P. Macdonell	Travelling expenses	30 75			
			1,982 87		

	EXPENSES OF JUDGES IN GROUPED COUNTIES.					
His Honour—						
Judge Davis	Services and expenses			161 10		
do Dean	do			244 05		
do Elliott	do			333 85		
do Mackenzie	do			341 15		
do Price	do			279 00		
do Robinson	do			189 47		
do Wilkison	do			282 15		
					1,830 77	
	EXPENSES *Re* DITCHES AND WATER COURSES ACT.					
His Honour—						
Judge Carman	Services and expenses			71 25		
do Davis	do			12 50		
do Toms	do			12 85		
do Wilkison	do			14 90		
					111 50	
	SHORTHAND REPORTERS.					
A. H. Crawford	Twelve months' salary as Reporter			1,600 00		
A. J. Henderson	do	do		1,500 00		
R. Tyson	do	do		1,500 00		
E. Horton	do	do		1,500 00		
N. R. Butcher	do	do		1,150 00		
J. S. Monaghan	do	do		1,150 00		
L. B. Young	do	do		1,150 00		
F. V. Dickson	do	do		1,150 00		
					10,700 00	
	COUNTY LAW ASSOCIATIONS.					
Hon. the Treasurer	To pay grants				1,000 00	
	DEPUTY CLERKS OF CROWN AND PLEAS.					
W. B. Rubidge	Twelve months' salary as	Deputy	Clerk of Crown and Pleas, Brant	450 00		
W. Gunn	do		Bruce	450 00		
J. P. Featherstone	do		Carleton	450 00		
J. McLaren	do		Dufferin	450 00		
D. McLaws	do		Elgin	450 00		
F. E. Marcon	do		Essex	450 00		
A. McGill	do		Frontenac	450 00		
Geo. Inglis	do		Grey	500 00		
J. Mitchell	do		Haldimand	400 00		
W. A. Lawrence	do		Halton	400 00		
	Carried forward			4,450 00	33,588 55	250,580 45	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	4,450 00	33,588 55	250,580 45	368,358 37
	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.—*Con.*				
	DEPUTY CLERK OF CROWN AND PLEAS.—*Continued.*				
A. G. Northrup	Twelve months' salary as Deputy Clerk of Crown and Pleas, Hastings	450 00			
D. McDonald	do Huron	500 00			
W. A. Campbell	do Kent	450 00			
W. R. Gemmill	do Lambton	450 00			
C. Rice	do Lanark	450 00			
A. Thomson	do Renfrew	400 00			
S. Reynolds	do Leeds and Grenville	500 00			
W. P. Deroche	do Lennox and Addington	400 00			
J. Clench	do Lincoln	450 00			
John Macbeth	do Middlesex	500 00			
C. C. Rapelje	do Norfolk	450 00			
John Fisher	do Northumberland and Durham	500 00			
L. T. Barclay	do Ontario	450 00			
J. Canfield	do Oxford	450 00			
J. A. Austin	do Peel	400 00			
John Twigg	do Prince Edward	400 00			
J. McFadden	do Perth	450 00			
J. Moloney	do Peterborough	450 00			
John Fraser	do Prescott and Russell	450 00			
J. A. McDougall	do Stormont, Dundas and Glengarry	500 00			
J. McL. Stevenson	do Simcoe	500 00			
W. Grace	do Victoria	450 00			
J. McDougall	do Waterloo	850 00			
I. P. Wilson	do Welland	400 00			
S. H. Ghent	do Wentworth	500 00			
J. Hough	do Wellington	500 00			
T. A. P. Towers	do Algoma	100 00			
J. Meek	do Thunder Bay	100 00			
P. H. Stewart	do Parry Sound	100 00			
I. Huber	do Muskoka	100 00			
			17,100 00		

LOCAL REGISTRARS.

W. Rubidge	Salary as Registrar in Chancery Division,		Brant	225 00		
John McLaren		do	Dufferin	225 00		
D. McLaws		do	Elgin	225 00		
A. McGill		do	Frontenac	225 00		
George Inglis		do	Grey	250 00		
J. Mitchell		do	Haldimand	200 00		
W. A. Lawrence		do	Halton	200 00		
W. R. Gemmill		do	Lambton	225 00		
C. Rice		do	Lanark	225 00		
A. Thomson		do	Renfrew	200 00		
W. P. Deroche		do	Lennox and Addington	200 00		
C. C. Rapelje		do	Norfolk	225 00		
John Fisher		do	Northumberland and Durham	250 00		
L. T. Barclay		do	Ontario	225 00		
J. A. Austin		do	Peel	200 00		
John Twigg		do	Prince Edward	200 00		
J. McFadden		do	Perth	225 00		
J. Maloney		do	Peterborough	225 00		
John Fraser		do	Prescott and Russell	225 00		
J. A. McDougall		do	Stormont, Dundas and Glengarry	250 00		
W. Grace		do	Victoria	225 00		
J. McDougall		do	Waterloo	225 00		
H. P. Willson		do	Welland	200 00		
T. A. P. Towers		do	Algoma	50 00		
J. Meek		do	Thunder Bay	50 00		
R. H. Stewart		do	Parry Sound	50 00		
I. Huber		do	Muskoka	50 00		
					5,275 00	

LAND TITLES OFFICE.

J. G. Scott	Twelve months' salary as Master of Titles			3,800 00		
H. D. Sinclair		do	Chief Clerk	1,000 00		
W. McTavish		do	Clerk	800 00		
R. H. Essex		do	do	800 00		
F. Robinson	Six	do	do	350 00		
H. C. Russell	Twelve	do	Messenger	300 00		
Warwick & Sons	Printing and binding			18 57		
L. K. Cameron	Stationery			66 93		
W. W. Baldwin	Postage stamps			21 00		
J. G. Scott	do			8 00		
Office Specialty Co	Map tags			4 50		
Map and School Supply Co	Mounting maps			75		
Imrie & Graham	Legal chart, etc			3 25		
Might's Directory Co	Directory			6 00		
	Carried forward			7,179 00	55,963 55	250,580 45	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	7,179 00	55,963 55	250,580 45	368,358 37
	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.—*Con.*				
	LAND TITLES OFFICE.—*Continued.*				
Carswell & Co	Law book	5 00			
Lugsdin & Barnett	Brief bag	5 50			
I. C. Fell & Co	Rubber stamp	80			
M. Currey	Typewriting	1 00			
J. G. Scott	Petty office expenses	48			
Rose Cartage Co	Cartage	1 00			
			7,192 78		
	DRAINAGE ACT.				
B. M. Britton	Twelve months' salary as Referee	3,291 00			
E. J. Scully	do Clerk and Shorthand Writer	1,200 00			
L. K. Cameron	Stationery	30 52			
Geo. Lamperd	Livery hire	8 00			
Canadian Express Co	Charges	1 45			
B. M. Britton	Travelling expenses	333 66			
E. J. Scully	do	71 00			
			4,935 63		
	OFFICES OF LOCAL MASTERS IN THE DISTRICTS.				
Judge MacCrae	Services as Local Master, Algoma	125 00			
H. E. Hamilton	do do	375 00			
J. E. Lount	do Muskoka	300 00			
W. Doran	do Nipissing	200 00			
P. McCurry	do Parry Sound	500 00			
J. Munro	do Thunder Bay	312 50			
Judge MacCrae	Arrears for 1891	537 45			
J. E. Lount	do	175 10			
W. Doran	do	132 10			
P. McCurry	do	87 55			
J. Munro	do	354 70			
M. Currey	Copying	16 60			
Warwick & Sons	Printing and binding	81 26			

North Bay *Times*	Printing envelopes	7 75			
Warwick & Sons	Registers, etc	219 84			
L. K. Cameron	do	225 70			
do	Stationery	105 89			
W. W. Baldwin	Postage Stamps	9 00			
I. C. Fell & Co	Rubber Stamps	12 68			
Rolph, Smith & Co	Seal and press	7 50			
Estate late Judge MacCrae	Office disbursements	20 45			
Cozens & Bell	Removing safe	20 00			
W. H. Allan	Painting sign	15 00			
L. Allcock	Carpentering	8 50			
Map & School Supply Co	Mounting plans	1 45			
Joseph Doust	Law books	5 20			
Toronto Furniture & Supply Co	Office stool	2 50			
G. T. Railway Co	Charges	54			
Rose Cartage Co	Cartage	25			
Dominion Express Co	Charges	5 35			
Canadian Express Co	do	7 05			
J. G. Scott	Travelling expenses	90 33			
do	To pay sundries	1 85			
			3,961 09		
	ALGOMA DISTRICT.				
W. H. Carney	Twelve months' salary as Sheriff	1,400 00			
A. McNaughton	Four do Police Magistrate	466 00			
W. A. Quibell	Six do do	797 20			
Geo. Burden	Twelve do do	1,400 00			
J. J. Kehoe	do Clerk of Peace	800 00			
T. A. P. Towers	do Clerk District Court	600 00			
R. A. Lyon	do Registrar	800 00			
R. Rush	do Constable	400 00			
J. Mills	do do	250 00			
W. H. Carney	Allowance for rent of office	50 00			
J. J. Kehoe	do	100 00			
W. H. Carney	On account of expenditure as Treasurer, December quarter, 1891	2,176 34			
do	do March quarter, 1892	1,006 04			
do	do June quarter, 1892	3,160 79			
do	do September quarter, 1892	1,653 05			
A. Thorburn	Services as Lock-up keeper, Gore Bay	250 00			
R. Lewis	do Little Current	250 00			
T. Gorley	do Manitowaning	250 00			
A. Thorburn	Supplies, Lock-up, Gore Bay	21 30			
D. Bickell	do do do	4 85			
Anderson Bros	do do do	5 70			
A. Thorburn, Jr	Fuel do do	60 00			
R. Lewis	Supplies do Little Current	28 40			
do	Fuel do do	75 00			
do	Bedding do do	15 75			
	Carried forward	15,960 42	72,056 05	250,580 45	368,358 37

ADMINISTRATION OF JUSTICE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	15,960 42	72,056 05	250,580 45	368,358 37
	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.—*Con.*				
	ALGOMA DISTRICT. *Continued.*				
T. Gorley	Supplies, Lock-up, Manitowaning	90 30			
do	Fuel do do	60 00			
Reynolds & Co	Furnishings do do	12 20			
Rochester Bros	Services as Night Watch, Lock-up, Manitowaning	21 00			
Dr. Stephen	Medical attendance and medicine, Lock-up, Manitowaning	2 00			
R. A. Lyon	Stationery and expenses for Registry Office	49 05			
			16,194 97		
	DISTRICT OF THUNDER BAY.				
A. W. Thompson	Services as Sheriff	1,000 00			
do	do Acting Treasurer	200 00			
J. Meek	do Clerk District Court	450 00			
A. W. Thompson	On account of expenditure as Treasurer, December quarter, 1891	926 87			
do	do March quarter, 1892	2,727 91			
do	do June quarter, 1892	2,239 48			
do	do September, quarter, 1892	1,145 79			
do	do December quarter, 1892	800 00			
G. S. Beck, M.D	Medical attendance, Port Arthur Gaol, October 1889 to October 1890	400 00			
Fragrant Disinfectant Co	Disinfectors, Port Arthur Gaol	8 00			
T. A. Gorham	Services, Queen v. Maitland, *re* Assessment Roll	7 00			
			9,905 05		
	DISTRICT OF RAINY RIVER.				
W. D. Lyon	Twelve months' salary as Stipendiary Magistrate	1,600 00			
W. H. Carpenter	do Sheriff	1,000 00			
F. J. Apjohn	do Registrar and Clerk District Court	700 00			
W. H. McKay	do Chief Constable	960 00			
W. A. Griffith	Nine do Constable	225 00			
W. D. Lyon	On account of expenditure as Treasurer, December quarter, 1891	983 77			
do	do March quarter, 1892	895 08			
do	do June quarter, 1892	953 45			
do	do September quarter, 1892	861 41			

do	do	December quarter, 1892	250 00			
McCarthy, Osler & Co	To pay expenses of witnesses *re* Carrothers trial		650 00			
J. W. Murray	Expenses	do	1,450 65			
Hudson's Bay Co	Part expenses *re* fur robbery		154 47			
Sheriff Carpenter	Expenses *re* removal of prisoners to Central Prison		192 20			
James Bain & Son	Surrogate Court books		9 00			
				10,825 03		
	DISTRICT OF NIPISSING.					
W. Doran	Twelve months' salary as Stipendiary Magistrate		1,600 00			
E. B. Borron	do	do	1,300 00			
W. Doran	On account of expenditure as Treasurer,	December quarter, 1891	455 30			
do	do	March quarter, 1892	542 14			
do	do	June quarter, 1892	520 20			
do	do	September quarter, 1892	610 09			
W. A. Quibell	do	June quarter, 1892	726 59			
do	do	September quarter, 1892	245 78			
do	do	December quarter, 1892	539 34			
Warwick & Sons	Printing and binding		9 00			
L. K. Cameron	Abstract indexes for Registrar		32 00			
J. E. Rogers	Expenses *re* burglaries		71 65			
W. Greer	do Lock-up fire, Sudbury		39 70			
Canadian Express Co	Charges		1 30			
Dominion Express Co	do		50			
				6,693 59		
	DISTRICTS OF MUSKOKA AND PARRY SOUND.					
P. McCurry	Twelve months' salary as Stipendiary Magistrate, Parry Sound		1,800 00			
W. H. Spencer	do	and travelling expenses as Police Magistrate, Muskoka	500 00			
J. W. Bettes	Services as Sheriff, Muskoka District		500 00			
H. Armstrong	do	Parry Sound District	500 00			
I. Huber	Services as Deputy Clerk, Muskoka District		450 00			
Thomas Johnston	do	District Attorney and Clerk of the Peace	400 00			
R. H. Stewart	do	Deputy Clerk, Parry Sound District	450 00			
Mrs. C. W. Lount	Balance of salary of late C. W. Lount, S.M., Muskoka		450 00			
J. E. Lount	On account of expenditure as Treasurer,	December, quarter 1891	1,239 75			
do	do	do	March quarter, 1892	1,044 39		
do	do	do	June quarter, 1892	1,146 04		
do	do	do	September quarter, 1892	1,345 44		
do	do	do	December quarter, 1892	1,000 00		
P. McCurry	do	do	December quarter, 1891	1,017 96		
do	do	do	March quarter, 1892	651 39		
do	do	do	June quarter, 1892	1,107 89		
do	do	do	September quarter, 1892	440 40		
do	do	do	December quarter, 1892	600 00		
T. Johnston	Services and expenses Queen *v.* Austin and Good		16 85			
	rward		14,660 11	115,674 69	250,580 45	368,358 37

ADMINISTRATION OF JUSTICE.—*Concluded.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	14,660 11	115,674 69	250,580 45	368,358 37
	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.—*Con.*				
	DISTRICTS OF MUSKOKA AND PARRY SOUND. *Continued.*				
Warwick & Sons	Printing	32 66			
L. K. Cameron	Stationery	18 81			
do	Registrars' books	271 22			
Hart & Riddell	Procedure book	3 75			
Canadian Express Co	Charges	8 40			
F. S. Taggart & Co	Handcuffs	4 00			
J. E. Rogers	Expenses *re* incendiary fires	30 20			
W. Greer	do arson case	27 20			
			15,056 35		
	PROVISIONAL COUNTY OF HALIBURTON.				
M. Brown	On account of expenditure as Treasurer, December quarter, 1891	37 50			
do	do do March quarter, 1892	37 50			
do	do do June quarter, 1892	37 50			
do	do do September quarter, 1892	37 50			
J. E. Rogers	Expenses *re* perjury case	20 60			
			170 60		
	DISTRICT OF MANITOULIN.				
W. J. Francis	Services as Clerk of District and Surrogate Court	300 00			
D. R. Springer	do Registrar of Deeds and Master of Titles	500 00			
W. W. McCoy	do Constable	350 00			
P. McCurry	Services and expenses holding Division Courts	135 00			
G. F. Bostwick	Safe	125 00			
Canadian Express Co	Charges	1 20			
			1,411 20		
	PROVINCIAL POLICE ON NIAGARA AND DETROIT RIVERS.				
A. G. Hill	Twelve months' salary as Police Magistrate	1,200 00			
T. H. Young	do Chief of Police	1,098 00			
G. A. McMicking	Nine do Constable	548 00			

R. Griffin	Twelve	do	do	823 25		
G. Grisdale	Ten	do	do	610 00		
C. A. O'Malley	Twelve	do	do	747 25		
C. J. Metcalf	Six	do	do	368 00		
W. H. Morris	Two	do	do	91 50		
A. Davy	Three	do	do	150 00		
T. W. McKee	Twelve	do	do	1,000 00		
A. F. Campeau		do	do	730 00		
A. Bartlett, P.M.	Supervision of police on Detroit river			100 00		
Anderson & Logan	Police clothing			304 00		
Straith & McDonald	do			12 00		
Bartlett & McDonald	do			62 50		
Bourke & Co.	do			28 50		
B. R. Peddie	do			28 00		
Postmaster	Postage stamps			28 00		
G. E. Copeland	Stationery			12 28		
Newsome & Co.	do			35 00		
J. E. Anger	do			2 00		
Warwick & Sons	do			3 35		
J. J. Sidey	do			4 10		
Niagara Falls *Review*	Printing, re stationery			6 00		
R. Coulson	Fuel			82 00		
Bell Telephone Co.	Rent of instrument and messages			148 05		
A. G. Hill	Rent of office			150 00		
do	Care of office			48 00		
C. Baldry	Meals for prisoners			55 75		
W. McGregor & Co.	Livery hire			5 50		
A. G. Hill	Sundry payments			160 19		
T. W. McKee	Travelling expenses			38 05		
A. F. Campeau	do			34 12		
T. H. Young	do			83 12		
					8,796 51	
						141,109 35
	Total Administration of Justice					391,689 80

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward				760,048 17
	EDUCATION.				
	PUBLIC SCHOOLS.				
Treasurer, County of—					
Brant	Allowance *re* Public Schools	1,950 00			
Bruce	do	4,691 00			
Carleton	do	3,165 00			
Dufferin	do	2,854 00			
Elgin	do	3,125 00			
Essex	do	3,347 00			
Frontenac	do	2,480 00			
Grey	do	6,600 00			
Haldimand	do	1,962 00			
Halton	do	1,615 00			
Hastings	do	1,252 00			
Haliburton	do	645 00			
Huron	do	5,602 00			
Kent	do	3,997 00			
Lambton	do	3,625 00			
Lanark	do	2,039 00			
Leeds and Grenville	do	4,361 00			
Lennox and Addington	do	1,800 00			
Lincoln	do	1,726 00			
Middlesex	do	5,153 00			
Norfolk	do	2,768 00			
Northumb'd and Durham	do	5,720 00			
Ontario	do	3,755 00			
Oxford	do	3,565 00			
Peel	do	2,171 00			
Peterborough	do	2,221 00			
Perth	do	3,645 00			
Prescott and Russell	do	2,677 00			
Prince Edward	do	1,716 00			
Renfrew	do	3,607 00			
Simcoe	do	5,109 00			
Storm't, Dundas&Gleng'y	do	5,820 00			

Victoria	do		2,555 00			
Waterloo	do		2,710 00			
Welland	do		2,118 00			
Wellington	do		4,110 00			
Wentworth	do		2,976 00			
York	do		4,854 00			
Treasurer, City of—						
Belleville	do		1,036 00			
Brantford	do		1,716 00			
Guelph	do		1,101 00			
Hamilton	do		4,902 00			
Kingston	do		1,711 00			
London	do		3,436 00			
Ottawa	do		2,546 00			
St. Catharines	do		889 00			
St. Thomas	do		1,178 00			
Stratford	do		1,028 00			
Toronto	do		18,817 00			
Windsor	do		1,292 00			
Treasurer, Town of—						
Alliston	do		209 00			
Almonte	do		269 00			
Amherstburg	do		143 00			
Aurora	do		238 00			
Aylmer	do		270 00			
Barrie	do		502 00			
Berlin	do		752 00			
Bothwell	do		112 00			
Bowmanville	do		422 00			
Brampton	do		417 00			
Bracebridge	do		139 00			
Blenheim	do		207 00			
Brockville	do		822 00			
Carleton Place	do		535 00			
Chatham	do		925 00			
Clinton	do		301 00			
Cobourg	do		451 00			
Collingwood	do		626 00			
Cornwall	do		337 00			
Deseronto	do		372 00			
Dresden	do		237 00			
Dundas	do		289 00			
Durham	do		147 00			
Essex	do		188 00			
Forest	do		199 00			
Fort William	do		186 00			
Gravenhurst	do		230 00			
Galt	do		856 00			
Goderich	do		401 00			
Carried forward			177,520 00			760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	177,520 00			760,048 17
	PUBLIC SCHOOLS.—*Continued.*				
Treasurer, Town of—					
Gananoque	Allowance *re* Public Schools	436 00			
Gore Bay	do	148 00			
Harriston	do	198 00			
Ingersoll	do	530 00			
Kincardine	do	352 00			
Leamington	do	206 00			
Lindsay	do	549 00			
Little Current	do	116 00			
Listowel	do	294 00			
Mattawa	do	86 00			
Meaford	do	230 00			
Milton	do	158 00			
Mitchell	do	271 00			
Midland	do	272 00			
Mount Forest	do	316 00			
Napanee	do	399 00			
Newmarket	do	210 00			
Niagara	do	152 00			
Niagara Falls	do	297 00			
North Bay	do	51 00			
North Toronto	do	147 00			
Oakville	do	190 00			
Orangeville	do	478 00			
Orillia	do	484 00			
Oshawa	do	445 00			
Owen Sound	do	909 00			
Parry Sound	do	166 00			
Palmerston	do	206 00			
Paris	do	333 00			
Parkhill	do	159 00			
Pembroke	do	301 00			
Penetanguishene	do	463 00			
Perth	do	358 00			
Peterboro'	do	841 00			
Petrolea	do	516 00			

Picton	do		354 00			
Port Arthur	do		184 00			
Port Hope	do		588 00			
Prescott	do		232 00			
Ridgetown	do		279 00			
St. Mary's	do		375 00			
Sault Ste. Marie	do		134 00			
Sandwich	do		144 00			
Sarnia	do		690 00			
Seaforth	do		315 00			
Simcoe	do		385 00			
Smith's Falls	do		466 00			
Strathroy	do		398 00			
Stayner	do		163 00			
Thornbury	do		95 00			
Thorold	do		199 00			
Tilsonburg	do		273 00			
Trenton	do		402 00			
Uxbridge	do		263 00			
Walkerton	do		301 00			
Walkerville	do		260 00			
Waterloo	do		310 00			
Wallaceburg	do		251 00			
Welland	do		230 00			
West Toronto Junction	do		347 00			
Whitby	do		298 00			
Wingham	do		255 00			
Woodstock	do		1,115 00			
Treasurer, Village of—						
Acton	do		151 00			
Ailsa Craig	do		87 00			
Alexandria	do		36 00			
Alvinston	do		121 00			
Arkona	do		60 00			
Arnprior	do		225 00			
Arthur	do		84 00			
Ayr	do		122 00			
Ashburnham	do		196 00			
Athens	do		109 00			
Bath	do		63 00			
Bayfield	do		71 00			
Beamsville	do		109 00			
Beaverton	do		91 00			
Belle River	do		91 00			
Blyth	do		115 00			
Beeton	do		882 00			
Bradford	do		136 00			
Brighton	do		175 00			
Bolton	do		81 00			
		Carried forward	200,598 00			760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	200,598 00			760,048 17
	PUBLIC SCHOOLS.—*Continued.*				
Treasurer, Village of—					
Bobcaygeon	Allowance *re* Public Schools	122 00			
Brussels	do	147 00			
Burlington	do	166 00			
Burk's Falls	do	45 00			
Caledonia	do	121 00			
Campbellford	do	302 00			
Cannington	do	137 00			
Cardinal	do	120 00			
Casselman	do	24 00			
Cayuga	do	102 00			
Chesley	do	188 00			
Chesterville	do	87 00			
Chippawa	do	64 00			
Clifford	do	68 00			
Colborne	do	128 00			
Creemore	do	94 00			
Drayton	do	89 00			
Dunnville	do	274 00			
Dundalk	do	79 00			
Dutton	do	87 00			
East Toronto	do	113 00			
Egansville	do	58 00			
Elora	do	133 00			
Embro	do	72 00			
Erin	do	68 00			
Exeter	do	200 00			
Elmira	do	119 00			
Fenelon Falls	do	129 00			
Fergus	do	175 00			
Fort Erie	do	114 00			
Garden Island	do	48 00			
Georgetown	do	191 00			
Glencoe	do	117 00			
Grimsby	do	105 00			
Hagersville	do	106 00			

Hastings	do		60 00			
Huntsville	do		145 00			
Hawkesbury	do		54 00			
Hespeler	do		170 00			
Holland Landing	do		51 00			
Iroquois	do		140 00			
Kemptville	do		142 00			
Kingsville	do		169 00			
Lanark	do		103 00			
Lancaster	do		79 00			
Lakefield	do		136 00			
L'Orignal	do		106 00			
London West	do		230 00			
Lucknow	do		135 00			
Lucan	do		111 00			
Madoc	do		128 00			
Markdale	do		82 00			
Maxville	do		63 00			
Markham	do		129 00			
Merrickville	do		118 00			
Merritton	do		161 00			
Minden	do		124 00			
Milverton	do		69 00			
Millbrook	do		111 00			
Morrisburg	do		211 00			
Newboro'	do		54 00			
Newburgh	do		68 00			
Newbury	do		52 00			
Newcastle	do		91 00			
New Hamburg	do		154 00			
Niagara Falls	do		137 00			
Norwich	do		148 00			
Norwood	do		121 00			
Oil Spring's	do		136 00			
Ottawa East	do		85 00			
Omemee	do		86 00			
Paisley	do		147 00			
Point Edward	do		235 00			
Port Colborne	do		103 00			
Port Dalhousie	do		104 00			
Port Dover	do		130 00			
Port Elgin	do		224 00			
Port Perry	do		152 00			
Port Stanley	do		81 00			
Port Rowan	do		72 00			
Portsmouth	do		68 00			
Preston	do		195 00			
Rat Portage	do		196 00			
Rockland	do		27 00			
		Carried forward	210,683 00			760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	210,683 00			760,048 17
	PUBLIC SCHOOLS.—*Continued.*				
Treasurer, Village of—					
Renfrew	Allowance *re* Public Schools	206 00			
Richmond	do	47 00			
Richmond Hill	do	93 00			
Shelburne	do	225 00			
Southampton	do	174 00			
Springfield	do	52 00			
Stirling	do	96 00			
Stouffville	do	139 00			
Sutton	do	78 00			
Streetsville	do	86 00			
Sundridge	do	99 00			
Tara	do	87 00			
Teeswater	do	136 00			
Thamesville	do	95 00			
Tottenham	do	99 00			
Thedford	do	76 00			
Tiverton	do	63 00			
Tilbury Centre	do	65 00			
Tweed	do	58 00			
Vienna	do	43 00			
Wardsville	do	42 00			
Waterdown	do	82 00			
Waterford	do	144 00			
Watford	do	143 00			
Wellington	do	65 00			
Weston	do	112 00			
Wiarton	do	237 00			
Winchester	do	122 00			
Woodbridge	do	94 00			
Woodville	do	81 00			
Wroxeter	do	61 00			
Wyoming	do	99 00			
Treasurer, School Section—					
2 Alan	do	17 75			
1 Armour	do	49 08			

3	do	.....			25	06			
4	do	.....			9	82			
5	do	.....			7	71			
Aird Island		.....			17	05			
1	Assignack	.....			13	80			
2	do	.....			78	25			
3	do	.....			13	85			
6	do	.....			21	65			
7	do	.....			11	30			
3 and 4	Aylesworth	.....			10	85			
1	Barrie Island	.....			17	75			
Badger Mines		.....			21	05			
2	Bethune	.....			14	99			
1	Billings and Allan	.....			21	25			
2	do	.....			11	25			
4	Bidwell	.....			11	65			
5	do	.....			19	45			
6	do	.....			10	05			
2	Bonfield	.....			17	10			
Bruce Mines		.....			61	15			
1	Calvin	.....			9	00			
2	do	.....			9	00			
3	do	.....			10	80			
4	do	.....			10	80			
1	Campbell	.....			12	25			
2	do	.....			18	65			
3	do	.....			15	45			
4	do	.....			13	85			
1	Caledon	.....			17	70			
1	Carling	.....			10	19			
2	do	.....			14	79			
1	Carlyle	.....			12	25			
1	Carnarvon	.....			38	65			
2	do	.....			18	65			
3	do	.....			13	85			
1	Caldwell	.....			8	10			
1, 2, 3 & 4	Christie	.....			26	17			
1	Chapman	.....			49	08			
2	do	.....			20	12			
3	do	.....			13	13			
1	Cartier	.....			19	45			
1	Chapleau	.....			36	25			
1	Coffin	.....			21	05			
2	do	.....			12	25			
1	Croft	.....			19	90			
2	do	.....			12	63			
1	Dawson	.....			11	65			
1	Denison	.....			15	45			
1	Day & Gladstone	.....			18	45			
		Carried forward			214,973	51	.....	.....	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	214,973 51			760,048 17
	PUBLIC SCHOOLS.—*Continued.*				
Treasurer, School Section—					
2 Day & Kirkwood	Allowance *re* Public Schools	11 65			
1 Dunnet	do	26 10			
1 Ferrie	do	14 20			
1 Ferris	do	19 80			
2 Fenwick	do	8 45			
1 Fort Francis	do	13 85			
2 Foley	do	11 86			
3 do	do	8 17			
4 do	do	6 31			
1 French River	do	23 04			
1 Gladstone & Bright	do	16 05			
1 Gordon	do	20 25			
4 do	do	16 25			
1 Gibson	do	26 00			
1 Gurd	do	21 03			
1 Hallam	do	25 05			
1 Hagerman	do	40 64			
2 do	do	15 60			
3 do	do	16 37			
4 do	do	10 73			
1 Himsworth S	do	4 15			
2 do	do	16 99			
3 do	do	18 02			
4 do	do	26 31			
5 do	do	10 80			
6 do	do	21 99			
8 do	do	43 40			
2 Howland	do	44 25			
3 do	do	11 25			
1 Hilton	do	18 65			
2 do	do	16 25			
4 Jocelyn	do	11 25			
1 Johnston	do	16 25			
2 do	do	12 25			
1 Joly	do	15 79			

2 do	do		10 32			
1 Keewatin	do		63 75			
1 Laird	do		6 85			
5 Lash	do		9 25			
1 Lount	do		8 01			
2 do	do		12 76			
1 Long	do		21 75			
1 Lyell	do		7 20			
1 Lefroy & Plummer	do		21 05			
2 do & Thessalon	do		9 25			
1 Machar	do		13 83			
2 do	do		42 07			
3 do	do		7 36			
4 do	do		12 97			
5 do	do		14 09			
1 Mattawa	do		54 00			
1 Mills	do		37 63			
1 Monteith	do		5 19			
2 do	do		6 40			
3 do	do		16 16			
7 Morley	do		8 85			
1 McDonald	do		9 25			
2 do & Meredith	do		8 25			
1 McKim	do		54 00			
2 do	do		30 60			
3 do	do		9 00			
2 McDougall	do		15 75			
3 do	do		9 47			
4 do	do		12 37			
5 do	do		7 94			
1 McMurrich	do		22 30			
2 do	do		12 05			
3 do	do		11 77			
4 do	do		14 67			
5 do	do		5 94			
1 McKenzie	do		7 24			
1 McKellar	do		41 62			
3 do	do		12 93			
4 do	do		11 75			
5 do	do		5 50			
1 Nipissing	do		25 44			
2 do	do		6 56			
3 do	do		12 68			
1 Oliver	do		13 75			
2 do	do		13 05			
1 Proudfoot	do		10 50			
1 Patterson	do		13 10			
1 Prince	do		7 60			
2 Pringle	do		6 76			
	Carried forward		216,413 09			760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	216,413 09			760,048 17
	PUBLIC SCHOOLS.—*Continued.*				
Treasurer, School Section—					
1 Perry	Allowance *re* Public Schools	39 84			
2 do	do	16 34			
3 do	do	6 52			
4 do	do	8 61			
5 do	do	6 57			
6 do	do	23 93			
7 do	do	11 16			
10 do and Chaffey	do	38 77			
1 Plummer	do	13 25			
2 do & Rose	do	13 75			
1 Rutherford	do	25 05			
1 Rayside	do	21 15			
2 do	do	10 05			
1 Robinson	do	10 25			
1 Ryerson	do	9 64			
2 do	do	18 16			
3 do	do	16 44			
4 do	do	15 35			
1 Salter	do	14 65			
2 do & May	do	17 05			
1 Schreiber	do	14 65			
1 Sandfield	do	15 25			
2 do	do	12 45			
4 do	do	13 05			
1 Springer	do	23 40			
2 do	do	7 20			
1 Spragge	do	21 75			
1 Strong	do	28 58			
2 do	do	18 27			
3 do	do	25 01			
5 do	do	12 71			
6 do	do	9 25			
1 Spence	do	17 82			
2 do	do	12 60			
3 do	do	4 66			

4 do	do		9 33		
1 St. Joseph's Island	do		19 45		
2 do	do		15 20		
3 do	do		9 45		
4 do	do		14 65		
5 do	do		13 75		
7 do	do		9 65		
1 Tarbutt	do		24 25		
2 do & Laird	do		17 85		
1 Tehkummah	do		23 45		
3 do	do		14 65		
1 Thessalon	do		78 25		
2 do	do		25 75		
1 Thompson	do		9 85		
1 Victoria	do		23 45		
1 Wallbridge	do		42 89		
2 do	do		35 59		
1 Wells	do		8 45		
3 do	do		9 45		
1 Wilson	do		14 24		
2 Widdifield	do		4 50		
Treasurer, Township of—					
Adolphustown	do		69 00		
Beckwith	do		196 00		
Brunnel	do		79 00		
Burgess, N	do		114 00		
Cardwell	do		47 00		
Chaffey	do		121 00		
Cavendish	do		97 00		
Denbigh, etc	do		106 00		
Draper	do		122 00		
Dunn	do		108 00		
Franklin	do		39 00		
Fredericksburg	do		120 00		
Griffith, etc	do		51 00		
Head, Clara, etc	do		46 00		
Humphrey	do		60 00		
Korah	do		46 40		
Lobo	do		355 00		
Macaulay	do		86 00		
McLean & Ridout	do		83 00		
Metcalfe	do		202 00		
Monck	do		96 00		
Morrison	do		100 00		
Muskoka	do		90 00		
Oakley	do		43 00		
Pelee Island	do		38 00		
Rochester	do		264 00		
Ryde	do		69 00		
	Carried forward		220,257 77		760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	220,257 77			760,048 17
	PUBLIC SCHOOLS.—*Continued.*				
Treasurer, Township of—					
Sherbrooke	Allowance *re* Public Schools	107 00			
Tay	do	466 00			
Sinclair	do	39 00			
Stephenson	do	116 00			
Stisted	do	79 00			
Warwick	do	401 00			
Wood & Medora	do	104 00			
Watt	do	101 00			
			221,670 77		
	SEPARATE SCHOOLS.				
Trustees, City of—					
Belleville	Allowance *re* Separate Schools	229 50			
Brantford	do	187 00			
Guelph	do	216 50			
Hamilton	do	818 50			
Kingston	do	525 00			
London	do	441 50			
Ottawa	do	2,807 00			
Stratford	do	201 50			
St. Catharines	do	280 50			
St. Thomas	do	131 00			
Toronto	do	2,290 00			
Trustees, Town of—					
Almonte	do	95 00			
Amherstburgh	do	132 50			
Barrie	do	132 50			
Berlin	do	171 00			
Brockville	do	231 50			
Chatham	do	148 50			
Cobourg	do	136 00			
Cornwall	do	394 00			
Dundas	do	142 50			
Goderich	do	47 50			
Galt	do	59 50			

Ingersoll	do		89 00		
Lindsay	do		219 50		
Mattawa	do		363 20		
Niagara Falls	do		68 00		
Newmarket	do		33 00		
North Bay	do		99 20		
Oakville	do		35 50		
Oshawa	do		62 50		
Orillia	do		113 50		
Owen Sound	do		68 00		
Paris	do		42 50		
Peterborough	do		400 50		
Perth	do		109 50		
Packhill	do		32 50		
Pembroke	do		230 00		
Portsmouth	do		14 00		
Port Arthur	do		173 00		
Prescott	do		130 50		
Picton	do		38 00		
Rat Portage	do		64 00		
Sarnia	do		76 00		
Sault Ste. Marie	do		30 50		
St. Mary's	do		37 50		
Thorold	do		105 00		
Trenton	do		172 50		
Walkerton	do		39 50		
Waterloo	do		43 50		
Whitby	do		34 50		
Trustees, Village of—					
Alexandria	do		146 00		
Arthur	do		59 00		
Arnprior	do		134 00		
Casselman	do		70 00		
Elora	do		32 50		
Egansville	do		57 00		
Fergus	do		15 50		
Hastings	do		36 50		
Hawkesbury	do		129 50		
L'Orignal	do		9 00		
Merriton	do		49 00		
Port Colborne	do		35 50		
Portsmouth	do		18 50		
Preston	do		32 50		
Renfrew	do		165 50		
Rockland	do		136 00		
Tilbury Centre	do		39 00		
Tweed	do		16 50		
Wallaceburg	do		55 50		
Weston	do		22 50		
		Carried forward	14,002 90	221,670 77	706,018 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	14,002 90	221,670 77	.....	766,048 17
	SEPARATE SCHOOLS.—*Continued.*				
Trustees, School Section--					
10 Adjala	Allowance *re* Separate Schools	16 00			
3 Alfred	do	18 50			
6 do	do	25 00			
7 do	do	20 50			
8 do	do	38 00			
9 do	do	23 50			
10 do	do	53 00			
11 do	do	21 00			
12 do	do	40 00			
13 do	do	15 00			
14 do	do	18 00			
7 do with 8 Plantagenet South	do	21 00			
4 Admaston	do	20 00			
3 & 4 Anderson	do	20 00			
6 Artemesia with 7 Glenelg	do	8 00			
6 Arthur	do	51 50			
10 do	do	27 00			
4 Asphodel	do	15 50			
15 Augusta	do	12 50			
1 (A) Bonfield	do	22 50			
1 (B) do	do	26 10			
2 do	do	9 00			
4 do	do	7 20			
4 Bromley	do	28 00			
6 do	do	27 50			
6 Burgess, N	do	10 50			
2 Brant with 3 Greenock.	do	2 00			
1, 15 Brighton	do	9 50			
9 Biddulph with 1 McGillivray	do	3 50			
6 Biddulph	do	23 50			
1 Brougham	do	16 50			
15 Charlottenburg	do	37 00			
4 Crosley, N	do	69 50			

7	do	do		10 00		
3, 4 and 10	Caledonia	do		33 50		
12	do	do		17 50		
6	do with					
7	Plantagenet	do		5 50		
2	Cambridge	do		52 00		
3	do	do		23 00		
4	do	do		4 00		
6 & 7	do	do		56 50		
1	Carrick	do		44 50		
2	do	do		20 00		
14	do	do		78 00		
1	Carrick with 1 Culross	do		56 50		
2	do 2 do	do		19 00		
1	Culross with 1 Carrick	do		71 00		
2	do 2 do	do		32 50		
5	Clarence	do		64 50		
6	do	do		56 50		
8	do	do		70 00		
11	do	do		16 00		
12	do	do		25 50		
13	do	do		37 00		
14	do	do		29 00		
16	do	do		9 00		
19	do	do		8 00		
20	do	do		9 50		
10	Cumberland	do		23 00		
11	do	do		6 00		
13	do	do		44 50		
14	do	do		20 00		
1	Cornwall	do		8 00		
16	do	do		90 00		
9	Downe	do		25 50		
2	Edwardsburgh	do		19 50		
7	Elice	do		19 00		
5	Finch	do		46 60		
2	Flamboro', W	do		13 00		
1	Gloucester with 3 Osgoode	do		13 00		
4, 5 and 12	Gloucester	do		7 00		
14	Gloucester	do		39 50		
15	do	do		37 00		
17	do	do		8 50		
20	do	do		29 00		
25	do	do		45 00		
5	Glenelg	do		30 50		
	do with 6 Artemesia	do		11 00		
	Greenock and Brant	do		31 00		
	Carried forward			16,164 70	221,670 77	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	16,164 70	221,670 77		760,048 17
	SEPARATE SCHOOLS.—*Continued.*				
Trustees, School Section—					
2 Hawkesbury E	Allowance *re* Separate Schools	37 50			
4 do	do	21 50			
6 do	do	18 50			
7 do	do	91 50			
10 do	do	42 50			
12 do	do	17 00			
15 do	do	17 50			
16 do	do	12 00			
4 do W	do	102 50			
9 Harwick	do	26 00			
2 Haldimand	do	5 50			
14 do	do	5 50			
21 do	do	39 00			
1 (3) Hibbert	do	24 00			
3 Holland, etc.	do	12 50			
14 Hungerford	do	78 00			
2 Hullett	do	5 50			
12 Innisfil with town of Barrie	do	7 50			
7 Kitley	do	7 50			
8 Kingston	do	20 00			
3 L'Orignal	do	12 50			
2 Longueuil	do	24 50			
4 A do	do	13 50			
7 do W	do	21 00			
12 (A) Lochiel	do	47 50			
12 (B) do	do	36 50			
14 Lancaster	do	23 50			
3 Matawatchan	do	27 00			
4 Maidstone with 2 Rochester	do	24 00			
1 Marmora and Lake	do	16 50			
3 A Malden	do	35 00			
3 B do	do	34 00			
3 Mara	do	57 50			

3, 4 and 5 Moore	do		12 00		
3 March	do		13 50		
4 Mornington	do		33 50		
1 McGillivray with 9 Biddulph	do		3 50		
1 McKillop	do		23 50		
1 McKim	do		63 90		
7 Nepean	do		45 50		
15 (B) do	do		101 50		
1 Nichol	do		30 00		
5 Normanby	do		22 50		
10 do	do		11 50		
1 Osgoode	do		15 00		
15 (2) do	do		21 50		
3 Osgoode with 13 Cumberland	do		5 00		
3 Osgoode with 1 Gloucester	do		7 50		
10 Otonabee	do		10 00		
8 Peel	do		8 00		
12 do	do		36 00		
4 Plantagenet N	do		22 50		
7 do with 6 Caledonia	do		4 50		
7 Plantagenet S	do		45 50		
8 do with 7 Alfred	do		12 50		
9 Plantagenet N	do		30 00		
15 do	do		24 50		
6 Proton	do		30 00		
5 Percy	do		8 00		
1 Papineau	do		18 90		
12 Percy with 12 Seymour	do		4 00		
10 & 17 Richmond	do		10 00		
6 Russell	do		86 50		
1 do with 12 Winchester	do		22 50		
12 Roxboro'	do		48 00		
16 do	do		7 50		
4 Raleigh	do		27 00		
5 do	do		23 50		
6 do	do		25 00		
2 Rochester with 4 Maidstone	do		14 00		
2 Stafford	do		22 00		
5 Sheffield	do		15 00		
12 Seymour with 12 Percy	do		4 00		
5 Sombra	do		37 50		
6 Stephen	do		43 00		
		Carried forward	18,179 00	221,670 77	769,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	18,179 00	221,670 77		760,048 17
	SEPARATE SCHOOLS.—*Continued.*				
Trustees, School Section—					
7 Sydenham	Allowance *re* Separate Schools	10 00			
7 Stamford	do	21 00			
1 Springer	do	42 30			
6 Toronto Gore	do	19 50			
2 Tiny	do	63 00			
7 Vespra	do	8 50			
1 Wolfe Island	do	18 50			
2 do	do	19 50			
4 do	do	30 00			
13 Waterloo	do	85 00			
10 Williams W	do	27 50			
15½ Wilmot	do	46 00			
8 Windham	do	31 50			
10 Woolwich	do	33 00			
1 Wawanosh W	do	17 00			
5 Wellesley	do	18 00			
9 & 10 do	do	29 00			
11 do	do	73 00			
12 do	do	11 50			
12 Winchester with 1 Russell	do	9 50			
13 Westminster	do	19 00			
1 York	do	37 50			
4 Yonge and Escott Rear	do	6 00			
			18,854 80		
				240,525 57	
	POOR SCHOOLS.				
Treasurer, County of—					
Bruce	Allowance *re* Poor Schools		230 00		
Dufferin	do		210 00		
Elgin	do		100 00		
Frontenac	do		990 00		
Haliburton	do		2,500 00		
Hastings	do		150 00		

Lanark	do		530 00		
Lennox and Addington	do		815 00		
Leeds and Grenville	do		255 00		
Ontario	do		300 00		
Peterboro'	do		420 00		
Renfrew	do		1,815 00		
Stormont, Dundas and Glengarry	do		50 00		
Victoria	do		1,160 00		
Trustees, School Section—					
1 Aird Island	do		45 00		
2 Allan	do		45 00		
1 Armour	do		70 00		
2 do	do		80 00		
3 do	do		60 00		
4 do	do		60 00		
5 do	do		60 00		
1 Assiginack	do		35 00		
2 do	do		30 00		
3 do	do		35 00		
6 do	do		40 00		
7 do	do		40 00		
24 Augusta	do		65 00		
3 and 4 Aylsworth	do		90 50		
1 Barrie Island	do		30 00		
4 Bidwell	do		40 00		
5 do	do		35 00		
6 do	do		45 00		
2 Bethune	do		60 00		
1 Billings & Allen	do		30 00		
2 do	do		45 00		
2 Bonfield	do		70 00		
26 Brighton	do		40 00		
1 Bruce Mines	do		30 00		
1 Blezard	do		50 00		
1 Campbell	do		45 00		
2 do	do		35 00		
3 do	do		35 00		
4 do	do		40 00		
1 Cameron	do		60 00		
1 Cardwell	do		75 00		
2 do	do		75 00		
5 do	do		80 00		
1 Carling	do		60 00		
2 do	do		60 00		
1 Carnarvon	do		25 00		
2 do	do		40 00		
3 do	do		45 00		
1 Carlyle	do		45 00		
Carried forward			11,475 00	240,525 57	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		11,475 00	240,525 57	760,048 17
	POOR SCHOOLS.—*Continued.*				
Trustees, School Section—					
1 Calvin	Allowance *re* Poor Schools		60 00		
2 do	do		60 00		
3 do	do		70 00		
4 do	do		60 00		
1 Chapman	do		50 00		
2 do	do		60 00		
3 do	do		60 00		
1 Caldwell	do		70 00		
Christie School Board	do		180 00		
1 Chapleau	do		40 00		
1 Conger	do		40 00		
1 Cobden	do		40 00		
1 Coffin	do		40 00		
2 do	do		40 00		
1 Croft	do		60 00		
2 do	do		50 00		
1 Cartier	do		50 00		
16 Darlington	do		75 00		
1 Dawson	do		45 00		
1 Denison	do		50 00		
1 Day & Gladstone	do		35 00		
1 Day & Kirkwood	do		45 00		
6 Dilke	do		100 00		
2 Fenwick	do		40 00		
1 Ferrie	do		50 00		
1 Fort Francis	do		90 00		
1 Ferris	do		60 00		
1 French River	do		60 00		
1 Foley	do		50 00		
2 do	do		60 00		
3 do	do		50 00		
4 do	do		50 00		
1 Gladstone & Bright	do		35 00		
21 Gloucester	do		25 00		
26 do	do		50 00		

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EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		16,045 00	240,525 57	760,018 17
	POOR SCHOOLS.—*Continued.*				
Trustee, School Section—					
10 Marlboro'	Allowance *re* Poor Schools		25 00		
12 do	do		15 00		
12 Matchedash	do		60 00		
1 Mattawa	do		60 00		
1 Mills	do		100 00		
1 Monteith	do		60 00		
2 do	do		50 00		
3 do	do		50 00		
7 Morley	do		100 00		
1 McDonald	do		35 00		
2 do & Meredith	do		30 00		
2 McDougall'	do		70 00		
3 do	do		60 00		
4 do	do		60 00		
5 do	do		65 00		
1 McKellar	do		60 00		
3 do	do		70 00		
4 do	do		70 00		
5 do	do		60 00		
1 McKenzie	do		50 00		
9 McGillivray	do		30 00		
1 McKim	do		60 00		
2 do	do		60 00		
3 do	do		50 00		
1 McMurrich	do		60 00		
2 do	do		60 00		
3 do	do		50 00		
4 do	do		60 00		
5 do	do		60 00		
6 Nepean	do		25 00		
1 Nipissing	do		50 00		
2 do	do		50 00		
3 do	do		60 00		
10 Nottawasaga	do		75 00		
1 Oliver	do		40 00		

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EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		20,315 00	240,525 57	760,048 17
	POOR SCHOOLS.—*Continued.*				
Trustees, School Section—					
1 Springer	Allowance *re* Poor Schools		160 00		
2 do	do		60 00		
1 Salter	do		45 00		
2 do & May	do		45 00		
1 Tarbutt	do		40 00		
2 do & Laird	do		40 00		
1 Tehkummah	do		35 00		
3 do	do		40 00		
5 Tecumseth	do		50 00		
17 do & 13 Essa	do		75 00		
2 Thessalon	do		35 00		
1 Thompson	do		40 00		
3 Torbolton	do		25 00		
1 Victoria	do		40 00		
1 Wallbridge	do		50 00		
2 do	do		50 00		
1 Wells	do		35 00		
3 do	do		45 00		
1 Wilson	do		50 00		
1 Warren	do		70 00		
1 Widdifield	do		100 00		
2 do	do		60 00		
Treasurer, Township of—					
Bangor	do		256 00		
Brunel	do		350 00		
Carlow	do		23 00		
Chaffey	do		610 00		
Draper	do		400 00		
Dungannon	do		117 00		
Ekfrid	do		60 00		
Elziver	do		57 00		
Faraday	do		117 00		
Franklin	do		240 00		
Humphrey	do		150 00		
Huntington	do		33 00		

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EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		30,098 00	240,525 57	760,048 17
	POOR SCHOOLS.—*Continued.*				
Trustees, School Section—					
6 Proton	Grants to Poor Roman Catholic Separate Schools		40 00		
1 & 15 N. Plantagenet	do		30 00		
2 & 4 Rochester and Maidstone	do		25 00		
12 Roxboro'	do		25 00		
7 Russell	do		70 00		
7 Stamford	do		25 00		
7 Sydenham	do		40 00		
1 Springer	do		75 00		
2 Stafford	do		25 00		
Tiny	do		60 00		
6 Toronto Gore	do		25 00		
24 Tyendinaga	do		50 00		
28 do	do		25 00		
30 do	do		60 00		
7 Vespra	do		50 00		
13 Westminster	do		50 00		
2 Widdifield	do		40 00		
4 Yonge & Escott	do		25 00		
1 York	do		50 00		
Casselman	do		75 00		
Rockland	do		75 00		
6 Machar	do		50 00		
Warwick & Sons	Printing		1 07		
Copp Clark Co	do		39 94		
Map and School Supply Co	Mounting Maps		101 20		
F. Porter	Postage Stamps		175 00		
				31,405 21	
	KINDERGARTEN SCHOOLS.				
Public School Board, City of—					
Brantford	Allowance *re* Kindergarten Schools		59 25		
Hamilton	do		527 25		
Kingston	do		45 75		

London	do	108 00		
Ottawa	do	36 00		
St. Catharines	do	22 50		
Stratford	do	13 50		
Public School Board, Town of—				
Aylmer	do	48 00		
Brockville	do	15 00		
Chatham	do	33 75		
Dundas	do	35 25		
Ingersoll	do	20 25		
Peterboro'	do	32 25		
Preston	do	25 50		
Strathroy	do	35 25		
Tilsonburg	do	30 75		
Toronto Junction	do	24 75		
Niagara Falls	do	26 25		
Waterloo	do	46 50		
			1,185 75	
NIGHT SCHOOLS.				
Public School Board—				
Brantford	Allowance *re* Night Schools	26 00		
Berlin	do	26 00		
Hamilton	do	53 00		
Galt	do	19 00		
Kingston	do	17 00		
London	do	16 00		
St. Catharines	do	5 00		
Roman Catholic Separate School, Board of Trustees—				
Hamilton	do	8 00		
Peterboro'	do	5 00		
			175 09	
PUBLIC SCHOOL LEAVING EXAMINATIONS.				
Treasurer, County of—				
Bruce	Allowance *re* Public School Leaving Examinations	10 00		
Dufferin	do	30 00		
Durham	do	35 00		
Elgin	do	45 00		
Grey	do	35 00		
Halton	do	5 00		
Haldimand	do	90 00		
Huron	do	100 00		
	Carried forward	350 00	273,291 53	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		350 00	273,291 53	760,048 17
	PUBLIC SCHOOL LEAVING EXAMINATIONS.—*Continued.*				
Treasurer, County of—					
Kent	Allowance *re* Public School Leaving Examinations		40 00		
Lanark	do		50 00		
Lambton	do		10 00		
Lennox and Addington	do		20 00		
Leeds and Grenville	do		5 00		
Middlesex	do		45 00		
Ontario	do		10 00		
Simcoe	do		65 00		
Stormont, Dundas and Glengarry	do		55 00		
Victoria	do		85 00		
Wellington	do		20 00		
Wentworth	do		50 00		
Treasurer, Town of—					
North Bay	do		5 00		
Trustees, School Section—					
1 Armour	do		10 00		
1 McKim	do		5 00		
R. C. School Board—					
Mattawa	do		5 00		
F. Porter	Postage Stamps		25 00		
				855 00	
	HIGH SCHOOLS AND COLLEGIATE INSTITUTES.				
Treasurer, High School Board					
Alexandria	Allowance *re* High Schools and Collegiate Institutes		428 54		
Almonte	do		705 24		
Arnprior	do		621 82		
Aylmer	do		974 16		
Athens	do		734 38		
Aurora	do		650 82		
Arthur	do		493 23		
Barrie	do		1,148 65		
Beamsville	do		485 94		
Belleville	do		803 32		
Berlin	do		858 02		

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EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		48,245 40	274,146 53	760,048 17
	HIGH SCHOOLS AND COLLEGIATE INSTITUTES.—*Continued.*				
Treasurer, High School Board					
Mount Forest	Allowance *re* High Schools and Collegiate Institutes		698 58		
Madoc	do		552 17		
Napanee	do		1,226 03		
Newburgh	do		534 99		
Newcastle	do		426 96		
Newmarket	do		630 89		
Niagara	do		463 21		
Niagara Falls, South	do		510 77		
Norwood	do		587 47		
Oakville	do		497 10		
Omemee	do		439 00		
Orangeville	do		766 33		
Orillia	do		722 64		
Oshawa	do		741 94		
Ottawa	do		1,452 87		
Owen Sound	do		1,461 35		
Paris	do		634 70		
Parkhill	do		629 93		
Pembroke	do		608 31		
Perth	do		1,138 76		
Peterboro'	do		1,343 93		
Petrolea	do		795 38		
Picton	do		753 89		
Port Hope	do		777 44		
Port Dover	do		463 43		
Port Perry	do		726 16		
Port Rowan	do		442 60		
Prescott	do		450 92		
Port Arthur	do		466 42		
Port Elgin	do		646 02		
Renfrew	do		519 78		
Richmond Hill	do		469 13		
Ridgetown	do		1,147 05		
Sarnia	do		1,160 71		
Seaforth	do		1,205 28		

Smith's Falls	do			730 09		
Smithville	do			558 54		
Streetsville	do			439 05		
Sterling	do			494 91		
Strattord	do			1,415 47		
St. Catharines	do			1,392 86		
St. Thomas	do			1,369 38		
St. Mary's	do			1,138 04		
Sydenham	do			616 95		
Simcoe	do			653 09		
Strathroy	do			1,319 36		
Thorold	do			529 49		
Trenton	do			644 49		
Tilsonburg	do			497 40		
Toronto (Jarvis St.)	do			1,491 27		
do (Jamieson Ave.)	do			1,479 31		
do (Harbord St.)	do			728 88		
Uxbridge	do			664 13		
Vankleek Hill	do			532 67		
Vienna	do			499 90		
Walkerton	do			837 71		
Wardsville	do			450 57		
Waterdown	do			445 56		
Welland	do			637 26		
Weston	do			586 13		
Whitby	do			1,136 49		
Williamstown	do			465 89		
Windsor	do			884 17		
Watford	do			522 88		
Wiarton	do			238 16		
Woodstock	do			1,343 19		
Gravenhurst	Special grant			452 75		
Port Arthur	do			466 42		
					100,000 00	
The Public School Board of Trustees—		MODEL SCHOOLS.				
Athens	Allowance re Model Schools			150 00		
Barrie	do			150 00		
Beamsville	do			150 00		
Berlin	do			150 00		
Bracebridge	do			150 00		
Bradford	do			150 00		
Brampton	do			150 00		
Brantford	do			150 00		
Caledonia	do			150 00		
Chatham	do			150 00		
Clinton	do			150 00		
		Carried forward		1,650 00	374,146 53	760,018 1

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		1,650 00	374,146 53	760,048 17
	MODEL SCHOOLS.—*Continued.*				
The Public School Board of Trustees—					
Cobourg	Allowance *re* Model Schools		150 00		
Collingwood	do		150 00		
Cornwall	do		150 00		
Durham	do		150 00		
Elora	do		150 00		
Forest	do		150 00		
Galt	do		150 00		
Gananoque	do		150 00		
Goderich	do		150 00		
Hamilton	do		150 00		
Ingersoll	do		150 00		
Kincardine	do		150 00		
Kingston	do		150 00		
Lindsay	do		150 00		
London	do		150 00		
Madoc	do		150 00		
Meaford	do		150 00		
Milton	do		150 00		
Minden	do		150 00		
Mitchell	do		150 00		
Mount Forest	do		150 00		
Morrisburg	do		150 00		
Napanee	do		150 00		
Newmarket	do		150 00		
Norwood	do		150 00		
Orangeville	do		150 00		
Owen Sound	do		150 00		
Parry Sound	do		150 00		
Perth	do		150 00		
Picton	do		150 00		
Port Hope	do		150 00		
Port Perry	do		150 00		
Prescott	do		150 00		
Renfrew	do		150 00		
Richmond	do		150 00		

St. Thomas	do			150 00	
Sarnia	do			150 00	
Simcoe	do			150 00	
Stratford	do			150 00	
Strathroy	do			150 00	
Toronto	do			150 00	
Toronto Junction	do			150 00	
Vankleek Hill	do			150 00	
Walkerton	do			150 00	
Welland	do			150 00	
Whitby	do			150 00	
Windsor	do			150 00	
Woodstock	do			150 00	
6 Plantagenet	Grant for training of French teachers			150 00	
					9,000 00
	GRANT TO FRENCH-ENGLISH TRAINING SCHOOL.				
School Section—					
6 N. Plantagenet	Legislative grant				800 00
	TRAINING DISTRICT TEACHERS.				
P. S. Board of Trustees Town of—					
Burk's Falls	Legislative grant			200 00	
Gore Bay	do			200 00	
Mattawa	do			200 00	
North Bay	do			200 00	
Sault Ste. Marie	do			200 00	
					1,000 00
	TEACHERS' INSTITUTES.				
Treasurer, Teachers' Institute					
Algoma	Allowance re Teachers' Institutes			50 00	
Brant	do			25 00	
Bruce, East	do			25 00	
Bruce, West	do			25 00	
Carleton	do			25 00	
Dufferin	do			25 00	
Durham	do			25 00	
Dundas	do			25 00	
Elgin	do			25 00	
Essex, North	do			25 00	
Essex, South	do			25 00	
Frontenac	do			25 00	
Grenville	do			25 00	
Grey, East	do			25 00	
Grey, West	do			25 00	
					400 00
	Brought forward			400 00	384,946 53 760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward ...		400 00	384,946 53	760,048 17
	TEACHERS' INSTITUTES.—*Continued.*				
Treasurer, Teachers' Institute Grey, South	Allowance *re* Teachers' Institutes		25 00		
Glengarry	do		25 00		
Haliburton	do		25 00		
Hastings, North	do		25 00		
Hastings, South	do		25 00		
Halton	do		25 00		
Haldimand	do		25 00		
Huron, North	do		25 00		
Huron, West	do		25 00		
Hamilton	do		25 00		
Kent, East	do		25 00		
Kent, West	do		25 00		
Kingston	do		25 00		
Lambton, East	do		25 00		
Lambton, West	do		25 00		
Lanark	do		25 00		
Lennox and Addington	do		25 00		
Leeds, East	do		25 00		
Leeds, West	do	1888-9-90 & '92	100 00		
Lincoln	do		25 00		
London	do		25 00		
Middlesex, East	do		25 00		
Middlesex, West	do		25 00		
Muskoka	do		25 00		
Norfolk	do		25 00		
Northumberland	do		25 00		
Ontario	do		25 00		
Oxford	do		25 00		
Ottawa	do		25 00		
Parry Sound, East	do		25 00		
Parry Sound, West	do		25 00		
Peel	do		25 00		
Perth	do		25 00		
Prescott and Russell	do		25 00		
Prince Edward	do		25 00		

Renfrew	do			25 00		
Simcoe, North	do			25 00		
Simcoe, South	do			25 00		
Simcoe, East	do			25 00		
St. Catharines	do			25 00		
Stormont	do			25 00		
Toronto	do			25 00		
Victoria, East	do			25 00		
Victoria, West	do			25 00		
Waterloo	do			25 00		
Welland	do			25 00		
Wellington, North	do			25 00		
Wellington, South	do			25 00		
Wentworth	do			25 00		
York, North	do			25 00		
York, South	do			25 00		
Provincial Teachers' Institute	do			200 00		
J. Dearness	Services conducting Teachers' Institute at	Watford		20 00		
J. H. Smith	Attendance at do	Parry Sound		25 00		
Warwick & Sons	Printing			7 43		
F. Porter	Postage stamps			50 00		
Hon. G. W. Ross	Travelling expenses			120 00		
W. Houston	do			68 85		
J. Millar	do			21 00		
					2,262 28	
	ONTARIO SCHOOL OF PEDAGOGY.					
J. A. McLellan	Twelve months' salary as	Professor of Psychology	3,000 00			
A. Knox	do	Instructor in Reading and Elocution	400 00			
T. Parr	do	Drill Instructor	250 00			
				3,650 00		
W. S. Milner	Services, lecturing		150 00			
F. H. Sykes	do		150 00			
A. C. McKay	do		150 00			
J. Squair	do		150 00			
J. J. McKenzie	do		150 00			
W. Oldright, M.D.	do		100 00			
T. Bengough	do		150 00			
A. C. Casselman	do		150 00			
				1,150 00		
F. W. Merchant	Services, as Examiners		8 00			
S. T. Ratcliffe	do		8 00			
S. Baxter	do		8 00			
A. McIntosh	do		12 50			
A. C. Casselman	do		12 50			
H. W. Burt	do		5 00			
	Carried forward		54 00	4,800 00	387,208 81	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	54 00	4,800 00	387,208 81	760,048 17
	ONTARIO SCHOOL OF PEDAGOGY.—*Continued.*				
J. D. Dickson	Services as Examiner	4 00			
J. T. Copland	do	4 00			
R. Ross	do	4 00			
E. Giles	do	4 00			
H. Bins	do	4 00			
			74 00		
H. W. Davies	Presiding at examinations	16 00			
W. J. Carson	do	16 00			
A. Kinney	do	16 00			
			48 00		
F. W. Merchant	Services re examination papers	25 00			
J. C. Harstone	do	20 00			
A. C. Casselman	do	16 00			
J. Forsyth	do	24 75			
J. E. Wetherell	do	37 65			
J. N. Dale	do	25 80			
J. Davison	do	37 65			
N. Quance	do	25 50			
J. McMurchy	do	37 35			
W. W. Rutherford	do	37 35			
J. M. Hunter	do	37 35			
J. A. Houston	do	37 35			
Warwick & Sons	Printing	40 90			
			402 65		
L. K. Cameron	Stationery	12 15			
F. Porter	Postage stamps	87 50			
Williamson Book Co.	Books	4 00			
F. W. Merchant	Travelling expenses	15 25			
Express Co	Charges	10 00			
			128 90		
Board of Trustees, Collegiate Institute, Brockville	Use of building for examinations	50 00			
Board of Trustees, Collegiate Institute, London	do	50 00			
Board of Trustees, Collegiate Institute, Toronto	do (arrears 1891)	500 00			

Jolliffe & Co.	Use of tables for examinations	6 25	
Sundry newspapers	Advertising	696 25 65 50	
			6,125 30

INSPECTION OF NORMAL, HIGH, MODEL, PUBLIC AND SEPARATE SCHOOLS.

Inspection of Normal, High and Model Schools.

J. E. Hodgson	Twelve months' salary as Inspector of High Schools	2,500 00	
John Seath	do do	2,500 00	
J. J. Tilley	do do County Model Schools	1,850 00	
J. E. Hodgson	Travelling expenses	450 00	
John Seath	do	450 00	
J. J. Tilley	do	390 65	
J. A. McLellan	do	100 00	
Warwick & Sons	Printing and binding	223 13	
			8,463 78

Inspection of Public and Separate Schools.

Rev. George Grant	Twelve months' salary as Inspector of Public Schools, Parry Sound	1,500 00	
D. McCaig	do do Algoma	1,500 00	
J. F. White	do do Separate Schools	1,700 00	
C. Donovan	do do do	1,700 00	
Alexander, W	Salary as Inspector	667 50	
Atkins, W	do	691 25	
Ball, J. H	do	515 00	
Barnes, C. A., B.A.	do	490 00	
Brown, J. C.	do	556 25	
Brebner, J	do	650 00	
Brown, A	do	490 00	
Burrows, F	do	665 00	
Campbell, A	do	565 00	
Campbell, N. W.	do	570 00	
Glendenning, W. S	do	587 50	
Curry, C. D., B.A.	do	280 00	
Carlyle, W	do	656 25	
Colles, Rev. W. H. G	do	431 25	
Clapp, D. P., B.A.	do	516 25	
Craig, T. A	do	390 00	
Craig, J. J	do	406 25	
Davidson, A. B	do	525 00	
Day, Isaac	do	648 75	
Deacon, J. S	do	450 00	
Dearness, J	do	587 50	
Embury, A	do	487 50	
	Carried forward	18,226 25	8,463 78	393,334 11	760,018 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	18,226 25	8,463 78	393,334 11	760,048 17
	INSPECTION OF PUBLIC AND SEPARATE SCHOOLS.—*Con.*				
Fotheringham, D	Salary as Inspector	552 50			
Gordon, T	do	490 00			
Grey, J. B	do	420 00			
Gordon, N	do	525 00			
Grier, A	do	305 00			
Girardot, Thos	do	288 75			
Johnston, H. D	do	550 00			
Johnston, W., M.A	do	480 00			
Johnston, J	do	500 00			
Kinney, R., M.D	do	453 75			
Knight, J. H	do	338 75			
Kelly M. J., M.D	do	400 00			
McDiarmid, D	do	420 00			
McNaughton, A	do	433 75			
McBrien, J	do	760 00			
McKee, Rev. T	do	610 00			
Mackintosh, W	do	543 75			
Mitchell, F. L., B.A	do	850 00			
Moses, Clarke	do	488 75			
Maxwell, D. A	do	455 00			
Morgan, J. C., M.A	do	607 50			
Nichol, W. M., B.A	do	421 25			
Platt, G. D., M.D	do	472 50			
Pearce, Thos	do	826 25			
Reazin, H	do	1,142 50			
Robb, David	do	622 50			
Summerby, W. J	do	621 25			
Smith, J. H	do	505 00			
Smirle, A	do	656 25			
Scott, R. G., B.A	do	800 00			
Spankie, W., M.D	do	733 75			
Scarlett, E	do	658 75			
Tilley, W. E	do	626 25			
Tom, J. E	do	588 75			

Wadsworth, J. J., M.B.	do	621 25		
Treasurer, Board of Public School Trustees, City of—				
Belleville	Inspection in Cities and Town	115 00		
Brantford	do	190 00		
Guelph	do	150 00		
Hamilton	do	740 00		
Kingston	do	235 00		
London	do	430 00		
Ottawa	do	315 00		
St. Catharines	do	125 00		
St. Thomas	do	155 00		
Stratford	do	125 00		
Windsor	do	170 00		
Toronto	do	1,885 00		
Town of—				
Brockville	do	125 00		
Chatham	do	130 00		
Cobourg	do	55 00		
Niagara Falls	do	40 00		
Port Hope	do	75 00		
Peterboro'	do	130 00		
Perth	do	45 00		
Prescott	do	30 00		
St. Mary's	do	50 00		
Trenton	do	45 00		
West Toronto Junction	do	120 00		
Walkerville	do	20 00		
W. Macintosh	Services and expenses *re* Inspection in remote districts	75 00		
W. S. Clendenning	Services *re* Inspection new schools	25 00		
D. McCaig	Travelling expenses	402 30		
Rev. Geo. Grant	do	350 00		
J. F. White	do	550 00		
C. Donovan	do	300 00		
D. Fotheringham	Services *re* investigation, S. S. 8 York	8 00		
Sheriff Gibbons	Services, subpœna *re* Goderich investigation	29 93		
J. G. Hodgins	Travelling Expenses do	25 35		
F. N. Nudel	Law stamps	1 30		
Sundry Persons	Refund of postage on school accounts	114 52		
Warwick & Sons	Printing and binding	580 20		
L. K. Cameron	Stationery	49 73		
F. Porter	Postage stamps	422 00		
H. Allen	Postage	56		
Canadian Express Co	Charges	25		
C. P. R. Telegraph	Telegrams	52		
			46,429 66	
				54,893 44
	Carried forward			448,227 55

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			443,227 55	760,048 17
	DEPARTMENTAL EXAMINATIONS.				
G. A. Rose	Twelve months' salary as Printer	950 00			
S. A. May	do Clerk	750 00			
F. N. Nudel	Secretary to Joint Board of Examiners	200 00			
S. Kew	Services as Assistant to Printer	134 00			
J. Bunting	do	56 00			
			2,090 00		
Alexander, L. H	Services and expenses as Sub-Examiner	103 04			
Anderson, E. A	do	111 20			
Allen, T. G	do	57 40			
Alexander Prof	do	98 49			
Bell, J. J	do	218 67			
Bell, H. J	do	95 35			
Brethour, J. H	do	89 91			
Burgess, J. E	do	87 98			
Birchard, J. J	do	99 29			
Bryant, J. E	do	116 90			
Brown, A	do	55 45			
Carman, J. A	do	82 94			
Clarkson, C	do	93 83			
Croley, J. E	do	84 26			
Colbeck, F. C	do	81 55			
Clyde, Wm	do	89 81			
Crossweller, C. L	do	104 47			
Chant, C. A	do	78 82			
Corkhill, E. J	do	55 18			
Cox, J. L	do	101 57			
Cornwell, L. J	do	97 84			
Copland, J. S	do	62 70			
Craig, W. B	do	101 43			
Chase, G. A	do	51 04			
Chambers, G. E	do	154 97			
Cameron, J. H	do	115 06			
Dickson, J. D	do	102 87			
Davidson, J	do	84 82			
DeGuerre, A	do	93 87			
Davison, J	do	79 98			

Dale, J. N	do	120 15			
Dupuis, N. F	do	212 07			
Davidson, D	do	9 50			
Elliott, T. E	do	83 50			
Elliott, John	do	84 04			
Ellis, W. S	do	54 90			
Follick, T. H	do	90 79			
Forsythe, D	do	56 71			
Ferguson, W. C	do	121 23			
Fletcher, J	do	167 72			
Grant, D. M	do	83 22			
Gibbard, A. H	do	115 18			
Gray, R. A	do	99 01			
Hunter, D. H	do	105 26			
Hamilton, J. R	do	95 23			
Henderson, J	do	115 05			
Henderson, R	do	107 46			
Hill, G. L	do	94 21			
Henry, T. M	do	42 34			
Hilliard, T	do	49 20			
Jeffries, J	do	103 70			
Jewett, A. E	do	87 26			
Jamieson, J. S	do	100 09			
Johnston, J. R	do	96 82			
Jones, Prof	do	79 20			
Johnston, J	do	52 90			
Irvine, W. H	do	99 43			
Kennedy, L	do	90 29			
Kinnear, L	do	82 65			
Knox, A. A	do	59 72			
Knox, R. H	do	7 65			
Lillie, J. T	do	106 50			
Logan, W. McG	do	88 95			
Little, R. A	do	92 15			
Little, D. C	do	84 52			
Little, J. G	do	96 00			
Lennox, T. H	do	97 66			
Lang, A. E	do	122 92			
Libby, W. H	do	114 62			
Leacock, S. B	do	30 36			
Logan, C. J	do	76 38			
Milburn, E. F	do	104 56			
Marshall, J	do	107 69			
Missmore, J. F	do	97 63			
Mayberry, C. A	do	76 47			
Miller, Rev. J. O	do	60 66			
Mills, J. H	do	96 51			
Moore, A. J	do	88 16			
Milden, A. W	do	93 41			
Carried forward		7,252 23	2,090 00	448,227 55	760,018 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	7,252 23	2,090 00	448,227 55	760,048 17
	DEPARTMENTAL EXAMINATIONS.—*Continued.*				
Martin, J. E	Services and expenses as Sub-Examiner	198 36			
Murray, Alex	do	64 89			
Morden, G. W	do	54 18			
Manley, F	do	69 45			
Milner, W. S	do	181 75			
Morgan, J. C	do	52 15			
McCulloch, A	do	75 27			
McBride, D	do	84 06			
McPherson, M	do	92 81			
McIntyre, E. J	do	79 05			
McDougall, A. H	do	92 62			
McClement, W. T	do	78 60			
McDowell, C	do	94 83			
McEachren, N	do	99 57			
Mackenzie, J. J	do	76 98			
McKay, A. C	do	90 96			
McDermid, D	do	52 51			
Needler, G. H	do	119 02			
Nicol, W	do	102 58			
O'Connor, W	do	88 70			
Parker, F. R	do	83 23			
Perry, P	do	84 96			
Park, H. G	do	82 79			
Perry, S. W	do	83 89			
Packham, J. H	do	83 11			
Potter, Chas	do	79 11			
Powell, T. W	do	8 50			
Petch, J	do	126 94			
Quance, N	do	128 63			
Reed, G. H	do	86 90			
Robertson, J. C	do	105 88			
Redditt, T. H	do	101 87			
Robertson, W. J	do	93 52			
Reavley, A. W	do	56 60			
Reynar, A. H	do	115 67			
Reazin, H	do	55 00			
Shields, A. M	do	92 13			

Stevenson, A.	do	102 30		
Street, J. R.	do	80 82		
Seymour, W. F.	do	82 35		
Stevenson, L.	do	84 90		
Stevens, W. H.	do	77 40		
Sliter, E. O.	do	70 15		
Sykes, F. H.	do	212 52		
Squair, J.	do	183 42		
Turner, J. B.	do	52 60		
Thompson, R. A.	do	89 42		
Tilley, W. E.	do	48 15		
Waugh, J.	do	122 01		
Wilson, G. W.	do	107 02		
Wilson, H. L.	do	133 63		
Williams, W.	do	104 00		
Watson, A. H.	do	85 55		
Wright, A. W.	do	117 69		
Yule, D. D.	do	9 60		
Young, A. H.	do	116 73		
			12,449 65	
A. C. McKay	Services, presiding at Scholarship Examinations	75 00		
T. W. Powell	Services do	63 00		
D. Davidson	do do	80 50		
G. W. Johnston	do do	108 00		
R. H. Knox	do do	60 00		
W. McLaren	do do	63 50		
D. D. Yule	do do	63 50		
J. W. Hewson	do do	63 00		
H. W. Davies	do do	90 00		
Mrs. Isabella McKim	Services of her late husband, atten'ce in hall during exam'ns for scholarships	36 00		
			702 50	
W. Williams	Services re Appeals	30 75		
A. Stevenson	do	30 45		
R. H. Hunter	do	38 60		
D. C. Little	do	40 60		
J. G. Lillie	do	76 85		
J. Squair	do	26 25		
F. H. Sykes	do	34 00		
J. J. Bell	do	38 70		
W. J. Robertson	do	12 85		
C. A. Chant	do	29 00		
A. DeGuerre	do	43 30		
I. J. Birchard	do	39 90		
J. J. Mackenzie	do	8 75		
G. Chambers	do	26 75		
W. S. Milner	do	22 50		
A. H. Young	do	18 00		
			517 25	
	Carried forward		15,759 40	448,227 55	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		15,759 40	448,227 55	760,048 17
	DEPARTMENTAL EXAMINATIONS.—*Continued.*				
G. L. Michell	Services *re* Examination Papers	35 00			
A. Smirle	do	35 00			
J. C. Harstone	do	35 00			
D. A. Maxwell	do	35 00			
J. S. Deacon	do	25 25			
Isaac Day	do	25 00			
			190 25		
T. Bengough	Services, etc., *re* Commercial Examinations	16 50			
J. T. Slater	do	16 50			
A. C. Casselman	do	75 50			
W. A. Douglas	do	49 50			
H. W. Davies	do	66 00			
			224 00		
Miss C. M. Hart	Services and expenses *re* Examinations, Kindergarten	428 45			
Miss M. E. McIntyre	do	35 40			
Miss G. Bolton	do	46 70			
Mrs. L. T. Newcomb	do	28 00			
Mrs. A. M. Hughes	do	25 00			
F. Doane	Cab hire, do	13 85			
			577 40		
W. J. Somerville	Services and expenses *re* N. S. Examinations	39 30			
W. S. Clendenning	do	49 50			
Arthur Brown	do	46 45			
C. A. Barnes	do	53 90			
J. C. Morgan	do	52 10			
H. Reazin	do	51 30			
J. Johnston	do	48 75			
G. L. Michell	do	35 50			
W. J. Carson	do	35 50			
N. W. Campbell	do	35 50			
A. Smirle	do	35 50			
W. H. Ballard	do	35 50			
W. F. Chapman	do	5 00			
			523 80		
Isaac Day	Services *re* Examinations, Bracebridge	20 00			
H. Reazin	do and disbursements, Bracebridge	49 20			
			69 20		

J. Carlyle, M.D.	Presiding at Professional Examinations	12 00		
J. J. Mackenzie	Services as Examiner on Board	60 00		
			72 00	
Isaac Day	Services *re* Entrance Examination Papers	25 00		
J. S. Deacon	do do	25 00		
			50 00	
M. Clarke	do Public School Leaving Examinations	25 00		
A. B. Davidson	do do	25 00		
John Dearness	do do	25 00		
Copp Clark Co	Lithographing do	150 00		
			225 00	
C. Jeffrey	Services Copying	6 00		
H. R. Young	do	22 00		
A. Pride	Services and expenses collecting Zoological Specimens	48 40		
P. Ewing	do do Botanical do	2 00		
			78 40	
J. T. Johnston	Printers' Supplies	37 19		
Gwatkin & Son	do	40 87		
Toronto Type Foundry	do	39 32		
Canadian Printing Ink Co	do	3 00		
Westman & Baker	do	1 50		
J. Stevens & Son	do	17 10		
H. W. Petrie	Repairing engine	2 20		
S. Rogers	Oil for engine	37 51		
American Oil Co	do	1 80		
			180 49	
Warwick & Sons	Printing	1,284 03		
Rowsell & Hutchison	do	82 00		
L. K. Cameron	Paper	778 93		
Selby & Co	Drawing paper	3 00		
L. K. Cameron	Stationery	308 18		
Cyclostyle Co	do	2 00		
F. Porter	Postage stamps	83 25		
			2,541 39	
Bell Telephone Co	Messages	35		
C. P. R. Telegraph	Telegrams	1 28		
F. Doane	Cab hire	28 10		
Street Railway Co	Car tickets	2 00		
Express Co	Charges	25 75		
C. P. Railway Co	Freight charges	45		
Rose Cartage Co	Cartage	2 25		
			60 18	
W. A. Brock	Lead seals for Examination Papers	9 00		
D. C. Ridout & Co	Cotton bags do	30 75		
Adams Bros	Strapping bags do	27 00		
G. Ringham	Tin boxes do	18 75		
			85 50	
	Carried forward		20,637 01	448,227 55 760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		20,637 01	448,227 55	760,048 17
	DEPARTMENTAL EXAMINATIONS.—*Continued.*				
Educational Journal	Advertising	105 00			
Canadian Educational Monthly	do	8 00			
			113 00		
				20,750 01	
	NORMAL AND MODEL SCHOOLS, TORONTO.				
	SALARIES.				
T. Kirkland	Twelve months' salary as Principal and Science Master		2,500 00		
J. Carlyle	do Mathematical Master		2,000 00		
A. C. Casselman	do Drawing Master		800 00		
Miss N. Gilmaye	do French Teacher		150 00		
S. H. Preston	do Music Teacher		900 00		
T. Parr	do Drill and Gymnastic Master		530 00		
A. McIntosh	do Head Master, Boys' Model School		1,500 00		
R. W. Murray	do First Assistant do		1,200 00		
T. M. Porter	do Second do do		1,000 00		
S. M. Ross	Four do Third do do		217 00		
A. E. Rose	Eight do do do		500 00		
J. Wood	Twelve do Fourth do do		700 00		
Miss M. T. Scott	do Head Mistress, Girls' Model School		1,100 00		
Miss M. K. Caulfield	do First Assistant do		750 00		
Miss M. Meehan	do Second do do		800 00		
Miss A. Stuart	do Third do do		650 00		
Miss M. Rose	do Fourth do do		750 00		
Miss M. C. Hart	Eight do Teacher of Kindergarten and Provincial Inspector		600 00		
Miss M. McIntyre	Four do do do		267 00		
Miss M. Adair	do Assistant Teacher of Kindergarten		160 00		
Miss J. R. Laidlaw	Eight do do		320 00		
Miss A. Knox	Twelve do Teacher of Reading and Elocution		300 00		
A. H. Ewing	do Head Gardener, including allowance for rent		660 00		
H. Blunt	do Assistant Gardener		400 00		
P. Gaffney	do First Engineer, including allowance for rent		610 00		
J. A. Grainger	do Second Engineer		400 00		
John Moore	do Third do		400 00		

R. Glipin	do	Janitor, Normal School		510 00	
T. Williamson	do	do Boys' Model School		400 00	
J. Abraham	do	do Girls' do		400 00	
					21,474 00
		EXPENSES.			
Warwick & Sons	Printing and binding		115 25		
L. K. Cameron	Stationery		467 70		
Gould & Cook	do		2 50		
Brown Bros	do		60		
Copp Clark Co	do		34		
Cyclostyle Co	do		2 00		
F. Porter	Postage stamps		20 50		
				608 89	
Selby & Co	Supplies, Kindergarten		198 42		
Manton Bros	do		2 50		
J. R. Laidlaw	do		10 00		
H. Withers	do		60		
Art Metropole	do		1 60		
M. Adair	do		15 00		
				228 12	
Copp Clark Co	Books		413 43		
Canadian Publishing Co	Drawing books		54 45		
Rose Publishing Co	Copy books		22 14		
A. & S. Nordheimer	Music books		12 83		
				502 85	
Map and School Supply Co	Maps		16 65		
do do	Map pointers, brushes, etc		15 75		
A. Jeffrey	Brushes, etc		2 40		
Tingley & Stewart	Rubber stamp		5 00		
				39 80	
H. Miller & Co	Chemicals		124 21		
W. B. Montgomery	do		25		
W. L. Wood	do		50		
Challoner & Mitchell	Medals		145 00		
P. W. Ellis & Co	Engraving medals		12 88		
				282 84	
J. S. Carstaris	Services as substitute teacher		45 00		
Miss E. Dyke	do		20 00		
Miss J. Thornton	do		8 00		
Miss N. Russell	do		40 00		
James Carruth	Services during illness of janitor		69 00		
R. Shield, M.B	Services lecturing to N. S. Students		100 00		
W. Wagner, M.D	Medical services *re* injury to janitor		10 00		
				292 00	
Express Co	Charges		2 35		
Rose Cartage Co	Cartage		25		
				2 60	
	Carried forward			1,957 10	490,451 56	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	B c.	$ c.	$ c.	$ c.
	Brought forward		1,957 10	490,451 56	760,048 17
	NORMAL AND MODEL SCHOOLS, TORONTO.—*Continued.*				
	EXPENSES.—*Continued.*				
A. C. Casselman	Expenses, removing to Toronto		39 08		
A. McIntosh	Grant to annual games		25 00		
Sundry newspapers	Advertising		6 75	2,027 93	
	NORMAL AND MODEL SCHOOLS, OTTAWA.				
	SALARIES.				
J. A. McCabe	Twelve months' salary as Principal		2,500 00		
W. Scott	do Second Master		2,000 00		
T. H. McGuirl	do Drawing Master		900 00		
M. Fischot	do French Teacher		150 00		
W. G. Workman	do Music Teacher		900 00		
E. B. Cope	do Clerk and Accountant		600 00		
do	do Drill and Gymnastic Master		300 00		
E. D. Parlow	do Head Master, Boys' Model School		1,500 00		
T. Swift	do First Assistant do		1,200 00		
R. H. Cowley	do Second Assistant do		1,100 00		
C. F. Sutherland	do Third Assistant do		750 00		
A. Shenick	do Head Mistress, Girls' Model School		1,100 00		
M. G. Joyce	do First Assistant do		850 00		
M. A. Mills	do Second Assistant do		800 00		
M. G. Butterworth	do Third Assistant do		750 00		
Eliza Bolton	do Teacher of Kindergarten & Provincial Inspector		900 00		
Elsie Guillet	Four do Assistant do		160 00		
E. J. Kenny	Eight do do do		320 00		
A. Knox	Twelve do Teacher, Reading and Elocution		300 00		
W. Brethour	do First Engineer and Gardener		600 00		
J. Mooney	do Second do		450 00		
T. Bingham	do Labourer on grounds		400 00		
O. Macdonald	do Janitor, Normal School		510 00		
J. Urquhart	do do Boys' Model School		400 00		
Jos. Delaire	do do Girls' do		400 00		
R. Brighton	do Night Watchman		400 00	20,240 00	

	EXPENSES.			
Warwick & Sons	Printing and binding	52 94		
James Hope & Co	Stationery	263 63		
L. K. Cameron	do	164 81		
			481 38	
Bradley, Garretson & Co	Books	10 00		
Copp Clark Co	do	28 79		
James Hope & Co	Text books	682 64		
do	Drawing books	19 68		
do	Writing books	32 49		
E. L. Kellogg	Magazines, etc	2 50		
Hart & Riddell	Periodicals	33 40		
Durie & Son	Directory	3 00		
			812 50	
Coles National M'fg. Co	Supplies, Kindergarten	31 20		
James Hope & Co	do	39 46		
T. Moore	do	2 00		
			72 66	
Challoner & Mitchell	Medals	124 00		
Estate late J. Roberts	Chemicals, etc	39 29		
			163 29	
Arthur Brown	Services and expenses *re* Practical Examinations	40 50		
J. Johnston	do do	47 85		
W. J. Summerby	do do	37 10		
			125 45	
Canada Atlantic Ry. Co	Freight charges	3 20		
C. P. Railway Co	do	2 31		
Canadian Express Co	Charges	6 40		
Dominion Express Co	do	9 85		
J. A. MacCabe	Travelling expenses	77 00		
W. Scott	do	67 00		
			165 76	
J. Ferguson	Rent of Opera House *re* closing exercises	25 00		
Free Press Pt. Co	Printing programmes, etc. do	32 00		
M. Whelan	Cartage, etc do	1 50		
			58 50	
Miss B. M. Scott	Services as substitute teacher		20 00	
J. A. MacCabe	To pay sundry expenses		4 18	
Sundry newspapers	Advertising		78 47	
				1,982 19
	LIBRARY.			
	SALARIES.			
J. G. Hodgins	Twelve months' salary as Librarian and Historiographer		2,000 00	
Miss J. M. Crooks	do Assistant Librarian		550 00	
Thomas Greene	do Clerk		600 00	
				3,150 00
	Carried forward			517,851 68 760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			517,851 68	760,048 17
	LIBRARY.—*Continued.*				
	EXPENSES.				
Bradley, Garretson & Co.	Books	25 00			
Williamson Book Co.	do	200 67			
F. Porter	do	12 50			
Estes & Lauriat	do	45 50			
J. Britnell	do	89 15			
D. Appleton & Co	do	21 50			
Vannevar & Co.	do	3 20			
Evans Bros.	do	2 00			
J. E. Bryant Co.	do	12 90			
Publishers' Weekly	do	12 50			
W. F. Dyas	do	3 75			
Copp Clark Co	do	58 12			
C. Scribner's Sons	do	1 00			
J. Jacob	do	2 00			
J. Laidlaw	do	2 00			
G. F. Jelf	do	4 00			
J. B. Lippincott	do	1 50			
W. H. Evans	do	2 50			
E. Stanford	do	3 75			
Carswell & Co.	do	10 75			
Rowsell & Hutchison	do	7 50			
C. W. Bardeen	do	1 29			
Publishers "Men of the Day."	do	6 00			
Upper Canada Tract Society	do	16 90			
Funk & Wagnalls	do	12 40			
E. L. Kellogg & Co.	do	2 25			
D. W. Sutherland	do	1 50			
Johnston Bros.	do	1 60			
J. H. Kains	do	1 75			
Hart & Riddell	Magazines	60 55			
Might's Directory Co.	Directories	10 00			
Warwick & Sons	Printing and binding	233 37	636 03		
W. Briggs	Binding	1 00			

	Stationery	5 70			
Grand & Toy	do	38			
Brown Bros	do	1 00			
E. Porter	Postage stamps	100 00			
			341 45		
R. W. Anderson	Photo	50			
A. W. Lauder	do	1 00			
Toronto Photo Co	do	6 00			
			7 50		
T. H. Watkins	Lettering labels	3 00			
S. Castrucci	Plaster brackets	31 65			
Miss M. Peel	Busts of Rev. Dr. Burwash and Hon. J. J. C. Abbott	200 00			
do	Travelling expenses, etc., *re* busts	100 00			
Hamilton McCarthy	Bust, Hon. G. A Kirkpatrick	150 00			
			484 65		
Street Railway Co	Car tickets	4 75			
J. Ferguson	Cartage	25			
A. M. Richardson	do	50			
Canadian Express Co	Charges	9 75			
Collector of Customs	Duty charges	1 68			
			16 93		
Sarah Ross	Services during illness of Assistant Librarian	48 00			
N. C. Ross	do	24 00			
H. W. Davies	Services	50 00			
J. H. J. Kerr	do	42 00			
			164 00		
H. M. Wilkinson	To pay sundries		2 87		
Sundry newspapers	Subscriptions		311 31		
				1,964 74	
	SCHOOL OF PRACTICAL SCIENCE.				
	SALARIES.				
J. Galbraith	Twelve months' salary as Principal and Professor in Engineering		2,800 00		
W. H. Ellis	do Professor of Applied Chemistry		1,500 00		
A. P. Coleman	do Professor in Metallurgy and Assaying		1,800 00		
L. B. Stewart	do Lecturer in Surveying		1,200 00		
C. H. C. Wright	do Lecturer in Architecture		1,200 00		
T. R. Rosebrugh	do Lecturer in Electrical Engineering		1,200 00		
E. B. Merrill	Two and one-half months' salary as Lecturer in Mechanical Engineering		107 00		
C. J. Maram	Nine months' salary as Lecturer in Sanitary Engineering		900 00		
J. A. Duff	Twelve do Fellow in Engineering		500 00		
R. W. Ross	do Fellow in Chemistry		500 00		
Andrew Lane	Four do Fellow in Surveying		74 00		
George Goodwin	Five do Attendant in Chemistry		84 00		
David Sinclair	Three and one-half months' salary as Attendant in Chemistry		55 00		
W. R. Archabold	Eleven and one-half months' salary as Attendant in Metallurgy		190 00		
				12,110 00	
	Carried forward			531,926 42	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			531,926 42	760,048 17
	SCHOOL OF PRACTICAL SCIENCE.—*Continued.*				
	EXPENSES.				
Warwick & Sons	Printing and binding	487 94			
Rowsell & Hutchison	Printing examination papers	73 68			
L. K. Cameron	Stationery	170 41			
Brown Bros.	do	1 25			
Grand & Toy	do	4 75			
Vannevar & Co.	do	5 00			
			743 03		
Jas. Foster	Drawing tacks	2 00			
Tablet & Ticket Co.	Office boxes	7 12			
Thos. Henry	Sketch blocks, etc.	20 48			
G. Bunker	Rubber stamp	3 35			
J. Reading	Postage stamps	33 00			
			65 95		
Vannevar & Co.	Prize books	35 00			
Ginn & Co.	Text books	40 00			
J. E. Bryant Co.	Reference books	35 75			
Williamson Book Co.	Books	27 25			
Home Knowledge Association	do	9 75			
Jno. Wiley & Sons	do	33 60			
D. VanNostrand & Co.	do	24 40			
B. Westermann & Co.	do	14 25			
McMillan & Co.	Magazines, etc.	14 96			
T. Henry	do	6 50			
B. Westermann & Co.	do	16 36			
Bates, Kimball & Guild	do	5 00			
E. G. Allen	Periodicals	11 26			
R. Friedlander & Sohn	do	41 85			
J. E. Bryant Co.	do	10 50			
Might's Directory Co.	Directory	6 00			
			332 43		
Toronto University	Supplies for Physical Laboratory	22 50			
W. H. Sparrow	do do	22 75			
H. W. Petrie	do do	*10 50			
			55 75		

Hugh Miller & Co.	Chemicals, etc	918 34			
St. Leon Mineral Water Co.	Jars	7 50			
Fletcher Mfg. Co	Oil, jelly plates, etc.	5 03			
J. G. Ramsey & Co.	Plates, glasses, etc	73 24			
J. Carbutt	Plates	7 65			
E. Harris Co	Glass	65			
C. Potter	Lens for lantern exhibit	34 00			
McColl Bros. & Co	Sperm oil	10 00			
Lugsdin & Barnett	Leather straps	2 40			
Kilgour Bros	Paper boxes	19 80			
Richards Bros	Trays	10 40			
			1,089 01		
W. J. Graham	Services as Caretaker	750 00			
W. Simpson	do Engineer	720 00			
E. Redpath	do do	189 33			
W. Carrell	do do	72 00			
Jno. Beard	do Night Watchman	120 00			
			1,851 33		
C. H. C. Wright	Postage stamps, re opening	29 50			
D. Marsicano	Furnishing music, do	17 00			
L. B. Stewart	To pay attendants, do	3 50			
			50 00		
A. P. Coleman	Travelling expenses	8 85			
C. J. Marani	do	50 00			
			58 85		
Rose Cartage Co	Cartage	14 88			
Matthews Bros	do	2 75			
Canadian Express Co	Charges	11 85			
Dominion Express Co.	do	25			
G. T. Railway Co	Freight charges	60			
			30 33		
Prof. Galbraith	To pay sundries	...	17 55		
W. A. Lee	Grant to Engineering Society	...	50 00		
Sundry newspapers	Subscriptions and advertisements	...	47 00		
				4,391 23	
	MECHANICS' INSTITUTES.				
S. P. May	Twelve months' salary as Superintendent	1,700 00			
W. Lemon	do Clerk	650 00			
			2,350 00		
Treasurer, Mechanics' Institute					
Aberarder	Legislative grant	175 00			
Ailsa Craig	do	68 95			
Alliston	do	158 35			
Almonte	do	243 89			
Arnprior	do	25 00			
	Carried forward	671 19	350 00	536,317 65	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	671 19	2,350 00	536,317 65	760,048 17
	MECHANICS' INSTITUTES.—*Continued.*				
Treasurer, Mechanics' Institute—					
Arkona	Legislative grant	120 50			
Arthur	do	180 70			
Aurora	do	200 00			
Aylmer	do	233 50			
Ayr	do	225 00			
Belwood	do	62 85			
Belfountain	do	175 00			
Baden	do	151 00			
Bagnor	do	63 00			
Barrie	do	292 00			
Beamsville	do	243 25			
Beaverton	do	217 50			
Beeton	do	213 55			
Belleville	do	286 09			
Belmont	do	104 80			
Berlin	do	200 00			
Blenheim	do	250 00			
Brantford	do	200 00			
Brighton	do	165 20			
Brougham	do	96 00			
Bowmanville	do	250 00			
Blyth	do	69 00			
Bobcaygeon	do	234 70			
Bolton	do	213 67			
Brampton	do	187 00			
Brockville	do	350 00			
Bracebridge	do	175 00			
Burk's Falls	do	66 00			
Bradford	do	150 00			
Brussels	do	105 25			
Chatham	do	200 00			
Chatsworth	do	208 00			
Claude	do	175 00			
Chapleau	do	182 95			
Cheltenham	do	141 30			
Camden, E.	do	119 85			

Campbellford	do	126 00			
Cheapside	do	58 50			
Cannington	do	173 50			
Cardinal	do	219 25			
Carleton Place	do	210 00			
Clifford	do	175 00			
Clinton	do	250 00			
Colborne	do	50 00			
Cobourg	do	245 10			
Cold Springs	do	112 60			
Collingwood	do	204 36			
Cornwall	do	313 00			
Credit Forks	do	153 00			
Chesley	do	62 50			
Claremont	do	82 00			
Coldstream	do	58 60			
Deseronto	do	286 00			
Drayton	do	312 50			
Dundas	do	242 64			
Durham	do	200 00			
Dundalk	do	193 40			
Dunnville	do	86 60			
Duart	do	175 00			
Elmira	do	259 00			
Ennotsville	do	139 45			
Elora	do	295 00			
Embro	do	224 00			
Ethel	do	96 30			
Essex	do	250 00			
Erin	do	84 00			
Exeter	do	218 70			
Fenelon Falls	do	250 00			
Fergus	do	223 40			
Fort Erie	do	147 60			
Fonthill	do	283 50			
Forest	do	250 00			
Gorrie	do	59 00			
Galt	do	318 00			
Garden Island	do	250 00			
Georgetown	do	112 00			
Glencoe	do	205 00			
Goderich	do	326 00			
Glenmorris	do	156 35			
Grand Valley	do	135 35			
Grimsby	do	250 00			
Guelph	do	239 00			
Gravenhurst	do	103 00			
Gore Bay	do	158 00			
Carried forward		16,230 96	2,350 00	536,317 65	760,048 17

EDUCATION.—*Continued.*

WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	16,230 96	2,350 00	536,317 65	760,048 17
	MECHANICS' INSTITUTES.—*Continued.*				
Treasurer, Mechanics Institute					
Hamilton	Legislative grant	200 00			
Harriston	do	244 90			
Hensall	do	144 50			
Hespeler	do	132 25			
Highland Creek	do	112 10			
Huntsville	do	183 00			
Halton	do	175 00			
Holyrood	do	131 40			
Ingersoll	do	171 60			
Inglewood	do	186 00			
Iroquois	do	174 30			
Islington	do	109 90			
Jarvis	do	193 40			
Kingsville	do	64 90			
Kingston	do	345 00			
Kincardine	do	250 00			
Keewatin	do	75 00			
Lake Charles	do	110 00			
Lion's Head	do	200 00			
Lindsay	do	193 80			
Listowel	do	228 16			
London	do	250 00			
Lucan	do	94 40			
Lucknow	do	340 00			
Leamington	do	137 00			
Lancaster	do	124 00			
Lakefield	do	74 00			
Markham	do	161 75			
Markdale	do	291 40			
Meaford	do	200 00			
Merrickville	do	175 00			
Melbourne	do	100 20			
Midland	do	308 90			
Milton	do	219 75			
Mitchell	do	204 25			

Mono Road	do		175 00			
Morrisburg	do		246 10			
Mount Forest	do		285 57			
Napanee	do		250 00			
Newburgh	do		185 00			
Newmarket	do		74 50			
New Hamburg	do		101 00			
Niagara	do		128 00			
Niagara Falls	do		322 00			
Niagara Falls, South	do		152 00			
Norwich	do		200 00			
North Gower	do		85 65			
Oakville	do		200 00			
Orangeville	do		250 00			
Orillia	do		201 20			
Oshawa	do		310 00			
Ottawa	do		150 00			
Orono	do		77 00			
Owen Sound	do		388 00			
Oxford Mills	do		101 25			
Paisley	do		175 00			
Parry Sound	do		93 00			
Paris	do		250 00			
Penetanguishene	do		307 45			
Perth	do		250 00			
Peterboro'	do		288 00			
Picton	do		125 00			
Port Arthur	do		219 70			
Port Elgin	do		191 30			
Port Hope	do		223 70			
Port Carling	do		68 13			
Point Edward	do		222 45			
Palmerston	do		58 25			
Prescott	do		114 00			
Preston	do		250 00			
Port Rowan	do		250 00			
Pickering	do		149 50			
Parkhill	do		75 00			
Renfrew	do		116 00			
Ridgetown	do		250 00			
Ripley	do		214 60			
Richmond Hill	do		153 35			
Russell	do		148 80			
Romney	do		97 50			
Scarboro'	do		175 00			
Sault Ste Marie	do		217 74			
Seaforth	do		250 00			
Simcoe	do		200 00			
		Carried forward	31,552 56	2,350 00	536,317 65	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	31,552 56	2,350 00	536,317 65	760,048 17
	MECHANICS' INSTITUTES.—*Continued.*				
Treasurer, Mechanics' Institute—					
Shelburne	Legislative grant	123 60			
Shedden	do	113 75			
Smith's Falls	do	102 50			
Southampton	do	200 00			
Stratford	do	250 00			
Streetsville	do	91 75			
Stouffville	do	250 00			
St. Catharines	do	200 00			
St. Helen's	do	101 50			
St. George	do	221 85			
St. Mary's	do	250 00			
St. Thomas	do	200 00			
Strathroy	do	250 00			
Sparta	do	103 80			
Tara	do	200 00			
Tavistock	do	246 00			
Teeswater	do	220 50			
Thorold	do	282 20			
Tilsonburg	do	99 70			
Tilbury Centre	do	206 00			
Thamesville	do	229 70			
Thamesford	do	144 10			
Trenton	do	90 25			
Toronto	do	200 00			
Tottenham	do	150 00			
Tilbury East	do	175 00			
Tiverton	do	113 60			
Tweed	do	117 00			
Uxbridge	do	274 00			
Vandorf	do	161 60			
Victoria	do	153 00			
Walter's Falls	do	107 10			
Waterloo	do	200 00			
Watford	do	209 05			

Walkerton	do	182 25			
Welland	do	250 00			
Weston	do	242 25			
Wiarton	do	218 70			
West Toronto Junction	do	277 09			
Whitby	do	90 35			
Wingham	do	250 00			
Williamstown	do	54 75			
Woodstock	do	206 50			
Wroxeter	do	140 90			
Woodbridge	do	149 80			
Windermere	do	98 00			
Wyoming	do	239 38			
Wardsville	do	125 50			
Wisbeach	do	26 90			
St. Patrick's Library Association	do	230 60			
			40,372 48		
Warwick & Sons	Printing and binding	59 40			
F. Porter	Postage stamps	175 00			
F. Doane	Cab hire	1 75			
Street Railway Co.	Car tickets	1 50			
S. P. May	Travelling expenses	199 00			
			436 65		
				43,159 13	
	ART SCHOOLS, EXAMINATIONS, ETC.				
Ontario Society of Artists	Legislative grant	500 00			
School of Art, Brockville	do	480 00			
do Hamilton	do	585 00			
do Kingston	do	453 00			
do London	do	427 00			
do Ottawa	do	411 00			
do St. Thomas	do	464 00			
do Toronto	do	488 00			
			3,808 60		
E. B. Shuttleworth	Services as Examiner	35 00			
C. E. Macdonald	do	50 00			
C. Fuller	do	33 00			
J. H. McFaul	do	34 00			
A. C. Casselman	do	28 50			
R. Gagen	do	23 00			
W. D. Blatchley	do	22 00			
Prof. Wright	do	10 00			
Prof. Rosebrugh	do	10 00			
H. May	do	60 00			
Jno. Campbell	Services, presiding at examinations	3 50			
			309 00		
	Carried forward		4,117 00	579,476 78	760,048 17

EDUCATION.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c	$ c.
	Brought forward		4,117 00	579,476 78	760,048 17
	ART SCHOOLS EXAMINATIONS, ETC.—*Continued.*				
Warwick & Sons	Printing forms, etc	149 03			
Copp Clark Co.	Lithographing examples	70 00			
L. K. Cameron	Stationery	13 70			
Warwick & Sons	do	75			
			233 48		
F. Porter	Postage stamps	56 50			
Canadian Express Co.	Charges	21 90			
Dominion Express Co.	do	47 10			
G. T. Railway Co.	Freight charges	5 64			
Hamilton Boat Co.	do	2 41			
W. H. Muckle	do	2 13			
Street Railway Co.	Car tickets	1 75			
			137 43		
Challoner & Mitchell	Medals	90 00			
Rolph, Smith & Co.	Engraving medals	20 00			
			110 00		
E. C. Landon	Photo of art work, Montreal exhibition		10 00		
S. P. May	Travelling expenses		100 00		
Globe Printing Co.	Copies of paper		4 00		
H. M. Wilkinson	To pay sundries		1 84		
				4,713 75	
	LITERARY AND SCIENTIFIC.				
Canadian Institute, Toronto	Legislative grant		1,000 00		
Institut Canadien, Ottawa	do		400 00		
Literary Institute, Hamilton	do		400 00		
Literary and Scientific Society Ottawa	do		400 00		
				2,200 00	

	MISCELLANEOUS.				
Warwick & Sons	Printing and binding, Educational report	331 72			
Wm. Barber & Bros.	Paper do	139 42			
Toronto Lithograph Co	Cuts do	195 00			
			666 14		
Warwick & Sons	Printing and binding, Statutes and regulations	687 41			
Wm. Barber & Bros.	Paper do	531 69			
			1,219 10		
Copp Clark Co	Alterations to Bi-lingual Readers	212 66			
Geo. Coutelier	Services revising do	75 00			
			287 66		
T. Bengough	Services, Report Proceedings *re* University extension		35 00		
Hon. G. W. Ross	Travelling expenses		812 43		
				3,020 33	
	SUPERANNUATED PUBLIC AND HIGH SCHOOL TEACHERS.				
Hon. R. Harcourt	To pay teachers		63,679 25		
Dr. McPhedran	Medical examination of applicants		56 00		
Warwick & Sons	Printing forms, etc		15 35		
				63,750 60	
	Total Education				653,161 46
	Carried forward				1,413,209 63

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward				1,413,209 63
	PUBLIC INSTITUTIONS MAINTENANCE.				
	ASYLUM FOR THE INSANE, TORONTO.				
	SALARIES.				
Daniel Clarke, M.D	Twelve months' salary as Medical Superintendent	2,000 00			
Humphrey E. Buchan, M.D	Seven and half do Assistant do	671 23			
J. Robinson, M.D	Four and half do do do	428 77			
Thos. P. Weir, M.D	Twelve do do Physician	800 00			
William Tracy	do Bursar	1,400 00			
Mark Kielty	One do Bursar's Clerk	66 65			
F. O. Loft	Eleven do do	618 75			
do	One do Clerk	52 00			
Angus McKenzie	do Storekeeper	66 65			
Mark Kielty	Eleven do do	733 25			
George H. Preston	Twelve do Assistant Storekeeper	700 00			
Robert Blair	do Steward	750 00			
John Kelly	Two do Tailor	104 10			
Charles P. Newbauer	Ten do do	500 00			
Richard Palmer	Twelve do Baker	308 00			
William Studholme	do do	308 00			
Thomas Hughes	do Carpenter	600 00			
James Anthony	do do	550 00			
Robert Bruce	do Painter	575 00			
John Daly	do Bricklayer and Mason	625 00			
Peter Trowern	do Engineer	740 00			
George Beasant	do Gardener	400 00			
Joseph Graham	do Assistant Gardener and Gatekeeper	300 00			
William Mulholland	Three do Teamster	60 00			
William Blevins	Nine do do	180 00			
Thomas Charters	Twelve do Engine Driver	300 00			
James Burrow	do Porter	275 00			
John Scully	do Chief Attendant	336 00			
Margaret A. Bastedo	do Matron	500 00			

Eliza Corley	do	Assistant Matron	300 00		
Sundry persons	Wages of attendants, maids and other servants		15,155 13		
				30,403 63	
	EXPENSES.				
William Tracy	Allowance for Rent		400 00		
Mark Kielty	do		183 34		
Peter Trowern	do		100 00		
George Beasant	do		96 00		
Armstrong, C. J.	Hay		44 33		
American Journal of Insanity	Subscription		10 00		
Allan, S.	Vinegar		123 48		
Asylum for Insane, Hamilton	Settee		13 75		
Alexander & Anderson	Cloth		1,400 15		
Beadle, The D. W. Nursery Co	Trees, vines and plants		28 11		
Brown Bros.	Stationery		25 20		
Brooks, George W.	Straw		16 15		
Ball Electric Light Co.	Repairs		8 82		
Bird, J. L.	Postage stamps		17 00		
Barnard, Arthur	Hay		18 27		
Bryant, The J. E. Co	Subscription to *Practitioner*		3 00		
Bertram, J. & A.	Hardware		153 31		
Bain, James & Son	Magazines		134 45		
Bell Telephone Co.	Messages		45		
Brazil, F. P. & Co.	Medical comforts		37 20		
Buchanan, R.	Straw		14 95		
Banks, R.	do		14 05		
Bryan, Arthur	Hay		46 68		
Bigley, R.	Stove pipe, etc.		58 79		
Buchan, H. E., M.D	Expenses recovery of eloper		3 35		
do	To pay for gasolier		25 00		
Burns, John & Sons	Repairs to carriages		15 20		
Clarke, Robert	Stationery		1 75		
Claxton, Thomas	Music for patients pic nic		13 00		
Clapham, J.	Straw		14 50		
Consumers' Gas Co.	Gas		2,965 46		
Central Prison Industries	Boots and cloth		1,036 33		
Coleman, C. W.	Repairing clock		2 00		
C. P. Railway	Freight charges		36		
Canadian Express Co	Charges		95		
Canadian Oiled Clothing Co.	Bib aprons		9 00		
Craib, Andrew	Services		1 29		
Cosgrave & Co	Malt		22 50		
Clarkson, James	Hay		15 72		
Clarke, Daniel, M.D	Travelling expenses to Washington, D. C		100 00		
do	Membership fee to Association		5 00		
Cooey, Joseph & Co.	Wall paper, etc.		40 99		
Crosby, A. H.	Hay		12 46		
	Carried forward		7,232 34	30,403 63	.... 1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	7,232 34	30,403 63		1,413,209 63
	ASYLUM FOR THE INSANE, TORONTO.—*Continued.*				
	EXPENSES.—*Continued.*				
Carrigan, Thomas	Hay	37 28			
Carroll, Mary	Services	3 77			
Cameron, L. K	Stationery	227 08			
Darling, W	Evergreens	3 00			
Dixon, H. C	Postage	24 00			
Denby, Robert	Hay	59 32			
Doyle, M	Fish	1,048 00			
Dineen, W. & D	Robes	30 50			
Dumond, Arthur	Straw	12 39			
Dorrien Plating and M'f'g Co.	Hardware	2 25			
Delaney, E	Toilet soap	5 10			
Dixon, F. E. & Co	Belting	29 93			
Deacoff, H	Hay and straw	20 27			
Deacoff, William	Hay	13 83			
Davidson, William	Baskets	2 00			
Eby, Blain & Co	Groceries	4,411 73			
Ellis & Keighley	do	656 15			
Eckhardt, H. P. & Co	do	1,004 91			
Earle, S. R	Air injector and exhauster	89 43			
Edgar, C	Hay	18 00			
Fleischmann & Co	Yeast	8 55			
Forfar, George R	Straw	12 70			
Fawell, Henry	Hay	225 82			
Gowans, Kent & Co	Crockery, glassware, etc	243 47			
Gurney, The E. & C. Co	Repairs	33 88			
G. T. Railway Co	Freight charges	3 12			
Gutta Percha and Rubber Co.	Blankets	37 64			
Grenadier Ice and Coal Co	Ice	247 00			
Gormally, J. A	Interments	80 00			
Garbutt, George	Straw	7 25			
Gall, Anderson & Co	Lumber, etc	277 20			
Goodyear Rubber Store	Rubber goods	34 93			
Gibson, George H	Straw	19 25			
Galvanic Battery Works	Repairs	8 10			

Globe Printing Co	Subscriptions	10 00			
Gracey, A. W	Hay	7 80			
Gall Lumber Co	Lumber	97 55			
Grip Ptg. and Pubg. Co	Subscription	2 00			
Henge, D	Panorama	2 00			
Hill, A	Straw	14 58			
Hunter, R	Meat	12,475 69			
Harris, J. Alex	Groceries	25 88			
Hunter, M	Hay, straw and provisions	316 17			
Hyde, F. H	Repairs to machinery	239 07			
Homley, John	Hay	138 34			
Hale, M. F. & Co	Bus hire *re* transfer of patients	11 00			
Hughes, M. L	Denims, shirtings and cottons	216 25			
Horan, Annie	Services	3 65			
Inglis, John & Sons	Castings and repairs	189 16			
Irwin, C. W	Duty charges	10 95			
Irish Canadian	Subscription	1 00			
Johnston, S. W	Telegram	25			
Keith & Fitzsimons	Plumbing and supplies	94 96			
Kinsey, J	Hay	19 08			
Lowens, James	Bread	3 85			
Littleford, W. O	Repairing China	3 90			
Little, G. J	Telegrams	1 34			
Larkin, P. C. & Co	Tea	746 70			
Little, Sarah	Services	1 74			
Lang, J. W. & Co	Groceries	728 20			
Lister, R	Hay	15 40			
Mathews, F. H	Services as typewriter	156 00			
Might, J. M. & Co	Directories	10 00			
Miller, Hugh & Co	Drugs and chemicals	938 83			
Montgomery, A	Blacksmithing and repairs to vehicles	72 45			
Morse Soap Works	Soap	1,476 89			
Maloney, John	Sand lime and sewer pipe	19 24			
Morrison, James	Nathan lubricator	9 00			
Montgomery, A	Fruit	158 22			
Mason & Risch	Tuning instruments	13 00			
Mullin, David	Services	6 49			
Moore, William & Son	Fruit	461 55			
Mail Ptg. Co	Subscriptions	10 00			
Meeker, George	Straw	8 80			
Murphy, W. K	Coffin	8 00			
Monetary Times	Subscription	2 00			
Mathews, F	Smoked meat	4 13			
McMillan, John & Sons	Fruit	58 25			
McMaster & Co	Clothing and bedding	1,134 37			
McIntosh, P. & Son	Provisions	179 55			
McIntosh, James	do	1,774 72			
McKenna, John P	Postage	18 00			
McGill, William & Co	Coal	6,252 65			
	Carried forward	44,348 84	30,403 63		1,413,209 63

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	44,348 84	30,403 63		1,413,209 63
	ASYLUM FOR THE INSANE, TORONTO.—*Continued.*				
	EXPENSES.—*Continued.*				
Macdonald, John & Co	Clothing and bedding	1,665 38			
McDougall, Silas	Hay	16 83			
Meadows, Geo. B.	Furniture repairs	32 00			
Neubauer, Charles P	Services	20 68			
Nelson, H. A. & Sons	Candles, brooms, etc	166 53			
Norton, W.	Hay	22 08			
Nielson, James	Straw	8 55			
Ontario Coal Co	Coal	142 50			
Potter, Charles	Spectacles, thermometer, etc	9 75			
Pantechnetheca, The	China, etc	5 40			
Ryan, W.	Groceries, fruit, provisions, etc.	13,511 63			
Rice Lewis & Son	Hardware	739 50			
Ritchie, John	Hay	359 50			
Robb, James	Straw	6 72			
Rogers, Samuel & Co	Paints and oils	100 14			
Richardson, Robert	Hay	18 30			
Rennie, William	Seeds	134 78			
Rogers, Elias & Co	Coal	1,787 90			
Robertson, James & Co	Ironware	113 65			
Robinson, James M.D	Freight, cartage, etc	64 50			
Rossiter, Peter	Travelling expenses	1 25			
Ryan, J. & Co.	Tea	378 10			
Scidmore, R. P	Postage stamps	117 00			
Street Railway Co.	Car tickets	109 12			
Shelton, William	Furnishing music	107 00			
Smith, Andrew	Harness and repairs	37 76			
Smith, William	Hay	106 06			
Spenn, Jacob	Honey	54 92			
Sanderson & Co	Brushes	57 40			
Smith, Bros	Repairs to vehicles	18 00			
Smith, James	Hay	23 84			
Smith, John B. & Sons	Lumber, saw dust, etc	8 38			
St. Michael's Cathedral	Cab hire *re* religious services	187 50			

Stewart, J	Hay	17 46		
Shannon Shingle Mnfg. Co	Bedding	10 00		
Stewart & Wood	Paints and oils	135 17		
St. Lawrence Foundry Co	Repairs	20 85		
Skelly, John J	Sawdust	2 75		
Scott, Jennie	Services	4 03		
Sundry newspapers	Advertising *re* fuel and supplies	170 00		
Smith, David W	Dyeing	1 50		
Tocque, Rev. Philip	Religious instruction	10 00		
Toronto Construction and Electrical Supply Co	Furnishings	12 00		
Taylor, John	Hay	20 66		
Troy Laundry Machinery Co	Repairs	33 03		
Turner & Porter	Interments	129 50		
Tupper, James	Hay	17 40		
Verral, F. G	Typewriter supplies	1 00		
Wheeler & Bain	Furnishings	346 97		
Water Works Department	Water	3,268 35		
Wright, Robert J	Inspection, weights and measures	13 50		
Windrum, Samuel B	Repairs	1 75		
Warwick & Sons	Printing, etc	364 07		
Wellwood, Samuel	Music	26 00		
Walker, William	Weighing coal	14 25		
Whitmore, Frank	Hay	30 16		
Watson, J. T	do	15 54		
Zaroni, C	Stationery	46 50		
			69,193 93	
	ASYLUM FOR THE INSANE, MIMICO.			99,597 56
	SALARIES.			
J. B. Murphy, M.D	Twelve months' salary as First Physician	1,400 00		
W. C. Barber, M.D	Eleven do Assistant Physician	754 55		
Angus McKenzie	Two do Bursar	166 60		
James Corcoran	Eight and a-half months' salary as Bursar	701 07		
Robert Elkins	Twelve months' salary as Steward and Storekeeper	500 00		
James Aitles	do do Engineer	500 00		
John Gourley	Seven and a-half months' salary as Assistant Engineer	185 48		
Charles A. Brown	Five months' salary as Assistant Engineer	125 00		
William C. Tait	Twelve do Electrician	300 00		
Walter Carnochan	do do Carpenter	500 00		
George Dea	do do Baker	400 00		
William Boulton	do do Farmer	400 00		
Thomas Pattison	do do do	252 00		
Jessie Watson	Seven do Matron	206 04		
Annie Elkin	Twelve do Assistant Matron	250 00		
William Moise	do do Messenger	240 00		
Sundry persons	Wages of attendants, maids, and other servants	9,586 85		
			16,467 59	
	Carried forward		16,467 59	99,597 56	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		16,467 59	99,597 56	1,413,209 63
	ASYLUM FOR THE INSANE, MIMICO.—*Continued.*				
	EXPENSES.				
Alexander & Anderson	Clothing and bedding	2,943 09			
Anderson, John	Labor, repairing hot water boiler and gasometer	118 00			
Asylum for Insane, Kingston	Scrubbers	20 00			
Ailles, James	Travelling expenses	2 15			
Barton Bros	Manure	10 00			
Bostwick, George F	Chair	10 00			
Bertram, J & A	Hardware	134 24			
Bell Telephone Co	Messages	1 95			
Brazil, F. P. & Co	Medical comforts	4 60			
Barber, W. C	Travelling expenses	48 15			
Brown Bros	Stationery	22 78			
Beadle, The D. W. Nursery Co	Trees and vines	77 10			
Ball Electric Light Co	Repairs	264 80			
Bannon, William	Expenses recapturing eloper	12 55			
Boulton, William	Travelling expenses	1 10			
Burns, John	Repairing vehicles	27 50			
Central Prison Industries	Clothing and boots	1,455 20			
Currie, Robert J	Labor at intake pipe	6 00			
Claxton, T	Violin strings	5 25			
Coleman, C. W	Repairing clocks	6 00			
Canadian Express Co	Charges	32 20			
Cosgrave & Co	Malt	17 50			
Corbitt, Thomas	Lime	2 50			
Clemes Bros	Fruit	3 50			
Collett, Carrie	Wages	1 29			
Clarke, Henry	do	21 30			
Crozier, Andrew	Services as baker	72 40			
Cooper, John	Cleaning slush tank	4 00			
Cameron, L. K	Stationery	258 20			
Donnolly, Michael	Gravel	43 75			
Dixon, H. C	Postage stamps	18 00			
Doyle, M	Fish	1,205 36			
Dickenson, J. & E	Portland cement	178 50			

Doran, M. J	Fruit trees and field tile	117 75			
Davis, John	Pottery	117 18			
Dawson, Maggie	Wages	8 00			
Dempster, J	Fire grate	3 00			
Dineen, W. & D	Robes and hats	28 00			
Doty, John Engine Co	Repairs to machinery	93 75			
Dixon, F. E. & Co	Belting	14 75			
Eby, Blain & Co	Groceries	814 60			
Eckhardt, H. P. & Co	do	1,916 72			
Ellis & Keighley	Spices, etc	287 75			
Evans, Robert	Seed potatoes	3 70			
Flett, Lowndes & Co	Clothing	48 80			
Fraser, Margaret	Wages	8 00			
Faught, L. F	Service at gas well	6 00			
Farmer's Advocate	Subscription	1 00			
G.T.R. Co	Freight	239 74			
Garson & Purcer	Plastering and repairs	78 60			
G.T.R. Co	Railway fares	1 10			
Grenadier Ice & Coal Co	Ice	76 05			
Gray, George	Lumber	1,477 68			
Goodyear Rubber Co	Rubber goods	92 93			
Gutta Percha and Rubber Mfg. Co	Repairs	9 75			
Gorman, Annie	Wages	12 19			
G.N.W. Telegraph Co	Messages	25			
Globe Printing Co	Subscription	6 00			
Hunter, Robert	Meat	9,072 77			
Hale, M. F. & Co	Carriages	5 00			
Hyslop, Caulfield & Co	Clothing	76 35			
Horetzky, C. G	Queen filter	8 00			
Huff, John A	Expenses recapturing eloper	24 75			
Herod, Alfred	Bricklaying, plastering, etc	168 20			
Hance, Thomas	Rent of boat	10 75			
Hickman & Co	Onions	90			
Hunter, R	Poultry	46 50			
Howland, H. S. Sons & Co	Hardware, paints, oils, etc	603 71			
Howland & Elliott	Feed and fodder	1 76			
Hoey, Charles	Storage	75			
Irwin, C. W	Freight and brokerage	1 10			
Inglis, John & Sons	Repairs to machinery	57 49			
Institution for Education of Deaf and Dumb	Shoes	298 15			
Jolliffe & Co	Furnishings	33 50			
Keith & Fitzsimons	Plumbers' supplies	64 05			
Kent Bros	Clocks and repairs	21 60			
Keith, George	Hungarian grass	3 95			
Kelby, Lawrence	Threshing	25 00			
King, Joseph	Furnishing music	37 50			
Lake Shore Road Toll Gate	Tolls	44 35			
	Carried forward	23,128 38	16,467 59	99,597 56	1,413,209 63

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	23,128 38	16,467 59	99,597 56	1,413,209 63
	ASYLUM FOR THE INSANE, MIMICO.—*Continued.*				
	EXPENSES.—*Continued.*				
Lang, J. W. & Co	Groceries	852 95			
Linsdell, Henry	Wages	3 90			
Larkin, P. C. & Co	Tea	398 78			
Leadbeater, Fredk	Repairing furnace	40 00			
Leckie, J	Clothing	30 16			
Musson, Thomas	Gravel	15 00			
Miller, Hugh & Co	Chemicals, etc	633 48			
Morse Soap Works	Soap	481 99			
Moise, Charles	Wages	80 00			
Montgomery, A	Fruit	156 73			
Mingay, G. W	Hellebore	50			
Miller, Janet	Wages	3 90			
Meehan, John	Repairing mower	60			
Murphy, J. B.	Travelling expenses	18 95			
Mullin, Rachael	Wages	13 31			
Morrison, James	Plumbing supplies	266 17			
Moore, William & Son	Fruit	156 98			
Massey-Harris Co.	Repairs	16 65			
Mimico Sewer Pipe and Brick Mnfg. Co	Brick	3 50			
McMaster & Co	Clothing	513 71			
McMillan, John & Son	Fruit	91 24			
Macdonald, John & Co	Cloth	20 32			
McIntosh, P. & Son	Provisions	73 45			
McIntosh, James	do	53 25			
McMillan, J. P	Fruit	8 50			
McKenzie, Angus	To pay sundries	2 40			
McColl Bros. & Co	Oil	101 30			
McMahon, Broadfield & Co	Crockery, glassware, etc	538 15			
McGill, William & Co.	Coal	60 60			
Nelson, H. A. & Son	Brooms, brushes, etc	172 20			
Newkirk, N.	Tube cleaner	2 50			
Nie & Lynch	Stand for valve for Duplex pumps	6 00			
O'Byrne, P	Travelling expenses	2 00			

O'Connor, William	Hay	75 00			
Orr, Joseph	Horse	130 00			
Osborne, Worswick Co	Repairing boilers	89 20			
Ontario Pump Co	Hose attachment	2 50			
Ontario Lime Association	Lime, cement, etc.	4 65			
Potter, Charles	Thermometer	9 00			
Piper, Noah L. & Son	Lanterns	12 00			
Pearson, S. E.	Dentistry	4 00			
Patterson, Maggie	Wages	70			
Rose Cartage Co	Carting flour	15 60			
Ryan, William	Groceries and provisions	8,473 57			
Rice Lewis & Son	Hardware	614 10			
Rice, T. G	Wire cloth.	65 50			
Rogers, Samuel & Co	Oil	191 63			
Reid, Thomas	Celery	5 75			
Rogers, Elias & Co	Coal	16,815 80			
Rogers, Chas. & Sons Co.	Furniture	22 04			
Rennie, William	Seeds and implements	221 98			
Richey, Samuel	Straw	35 52			
Richardson, Bees & Calder	Iron	38 63			
Reid, C.	Insect powder.	2 25			
Sundry newspapers	Subscriptions and advertising	95 00			
Shelton, William	Furnishing music	60 50			
Slater, John	Blacksmithing	164 75			
Smith, Andrew	Harness and repairs	163 18			
Street Railway Co.	Tickets	34 95			
Smith, The C. J. Co. (Ltd.)	Wood	761 40			
Sutherland, C. N.	Scales	16 00			
Sanderson & Co	Brushes	47 65			
Scidmore, R. P.	Postage stamps	16 00			
Stanley, Harriet	Wages	3 19			
Scully, John	Dump carts	80 00			
Sandford, E.	Hay, straw, etc.	46 00			
Steele Bros. Co	Seeds, etc.	34 45			
Smith Bros.	Repairs to vehicles	30 00			
Street Railway Co.	Manure	20 00			
Strong, J. N.	Gravity door closers	9 00			
Sharp, D. M.	Expenses recapturing eloper	6 00			
Smith, A., V.S.	Professional services	4 00			
Stewart & Wood	Paints and oils	119 50			
Steel Sink Range Boiler and Stamping Co.	Screenings	1 00			
Smith, John B. & Sons	Lumber	12 06			
Tracy, William	To pay sundries	76			
Toronto News Co.	Subscriptions	34 70			
Van Malder, J.	Stove pipes, etc.	8 10			
Victoria Industrial School	Boots	3 50			
Warwick & Sons	Printing	206 64			
Wheeler & Bain	Iron and tinware	340 78			
	Carried forward	57,096 08	16,467 59	99,597 56	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	c.
	Brought forward	57,096 08	16,467 59	99,597 56	1,413,209 63
	ASYLUM FOR THE INSANE, MIMICO.—*Continued.*				
	EXPENSES.—*Continued.*				
Williams, A. R.	Tools, bolts, etc.	76 88			
Wright, Robt. J	Inspection of scales	6 35			
Williams Mnfg. Co.	Sewing machine needles	40			
Wheeler, George	Stock-taking and checking store books	136 70			
Warriner, R. C.	Smoking hams	3 92			
Watson, Miss J	Travelling expenses	9 00			
Wixon, E.	Postage stamps	17 00			
Williamson, R. C.	Sewing machine	35 00			
			57,381 33		
				73,848 92	
	ASYLUM FOR THE INSANE, LONDON.				
	SALARIES.				
R. M. Bucke, M. D.	Twelve months' salary as Medical Superintendent	2,000 00			
N. H. Beemer, M.D.	do Assistant do	1,100 00			
W. K. Ross, M.D	do First Assistant Physician	1,000 00			
W. C. Barber, M.D	One do Second do	66 67			
Alfred T. Hobbs, M.D.	Eleven do do do	758 33			
C. A. Sippi	Twelve do Bursar	1,400 00			
W. Wanless	do Bursar's Clerk	800 00			
D. McKenzie	do Storekeeper	800 00			
David Rodger	do Assistant Storekeeper	600 00			
Alexander McFie	do Engineer	700 00			
George Ross	do Assistant Engineer	400 00			
Andrew Dick	do Second Assistant Engineer	300 00			
J. A. Stewart	do Carpenter	550 00			
J. McIntosh	do Assistant Carpenter	500 00			
Thos. Wescott	do Plasterer and Bricklayer.	600 00			
George England	do Baker	400 00			
John Glen	do Tailor	460 00			
William Noble	do Painter	300 00			
Geo. W. Rennie	do Gardener	450 00			
P. F. Canniff	do Farmer	600 00			

M. A. Pope	do	Matron	500 00			
F. H. Billington	do	Assistant Matron	270 81			
Lillie Jones	do	Chief Attendant	250 00			
Sundry persons	Wages of attendants, farm hands, maids and other servants		22,078 20			
				36,884 01		
	EXPENSES.					
Andrew Dick	Allowance for rent		120 00			
Richard Flynn	do	in lieu of board	120 00			
D. McKenzie	do	for rent	183 33			
John McKenna	do	in lieu of board and rent	240 00			
D. Rodger	do	do	100 00			
Thomas McMullen	do	for board	120 00			
William Noble	do	for rent	120 00			
George Thurling	do	do	72 00			
William Wanless	do	do	216 67			
Anthistle, Wm	Lime		10 00			
Anderson, James J. & Co	Postage and stationery		289 15			
American Express Co	Charges		10 40			
Angus, George	Expenses recovering eloper		3 30			
Asylum Laundry	Tallow		115 36			
Allen, S	Vinegar		84 50			
Alexander & Anderson	Clothing and furnishings		455 31			
Advertiser Printing Co.	Printing and advertising		124 66			
Asylum, Kingston	Brushes, etc		48 00			
Ashman, M.	Threshing		30 00			
Anderson, James	Gravel		12 00			
Bacon, Daniel	Expenses recovering eloper		2 00			
Bowman & Co.	Lime and cement		138 65			
Bolton, James H. & Son	Lumber		516 90			
Bushnell Co., The (Limited)	Oil		31 75			
Brock, T.	Fish		948 69			
Bell Telephone Co.	Rent of instrument and messages		154 36			
Bowers, Edward	Poultry		103 49			
Bucke, R. M., M.D	Travelling expenses		48 45			
Burns, James	Horseshoeing		107 30			
Barber & Ellis Co.	Stationery		4 50			
Bryan, Thomas	Brushes		5 60			
Brooks, James	Teaming ice		40 00			
Barkwell, W. S	Drugs and chemicals		453 18			
Briody, John	Veal, straw, and delivering ice		113 12			
Brown, J. H.	Straw		22 14			
Baker, W. H	Electric bell		14 35			
Blackwell, F	Straw		11 91			
Bucke, R. M., M.D	Membership fee Medico-Psychological Association		5 00			
do	Travelling expenses	do	100 00			
Campbell, Dugald	Allowance for rent		72 00			
C. P. Industries	Flannel and blankets		617 70			
	Carried forward		5,985 77	36,884 01	173,446 48	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	5,985 77	36,884 01	173,446 48	1,413,209 63
	ASYLUM FOR THE INSANE, LONDON.—*Continued.*				
	EXPENSES.—*Continued.*				
Collector Customs	Duty charges	3 60			
Cameron, H. W.	Hay	20 24			
Clarke, John	Straw	12 78			
Chaderick, R. J.	Evergreens	2 00			
Catholic Record	Subscription	4 00			
Cowan, James & Co.	Hardware	703 93			
Campbell, John	Wagon repairs	33 50			
Coo, W. H.	Supplies for typewriter	7 45			
Crosby, Peter	Straw	55 44			
Cairncross & Lawrence	Drugs, medicines, paints and oils	471 91			
City Gas Co.	Gas	3,175 10			
Cameron, L. K.	Stationery	57 78			
C. P. R. Telegraph Co.	Messages	1 96			
Canadian Express Co.	Charges	5 80			
C. P. Railway Co.	Freight charges	12 82			
Canadian Publishing Co.	Books	19 50			
Cameron, A. D. & Son	Coal, lime and fire clay	13,345 81			
Canada Moss Co.	Moss	337 92			
Canadian Rubber Co.	Bedding, boots and coats	383 69			
Cairncross, G. & J. B.	Fish, fruit and vegetables	72 15			
Cleveland Electrical Co.	Furniture	6 00			
Craig, W. J.	Lumber	827 24			
Crosby, Robert	Straw and hay	94 61			
Cook, William	Straw	54 48			
Cawthorp, J.	Sawdust	5 00			
Comstock, H	Silver polish	3 00			
Colwell, Chas. F.	Music, etc	47 96			
Cole, A.	Furniture	15 60			
Dennis, R.	Wire and iron work	21 56			
Darch, J. & Sons	Repairs to harness	84 75			
Dewan, M. D.	Hay	266 96			
Dominion Express Co	Charges	2 30			
Dafton, John	Yarn	673 50			
Doran, M. J.	Fertilizers	67 00			

Donahue, Wm	Cab hire *re* religious instruction	50 00			
Dunn, John	Recapturing eloper	1 50			
Dickinson, Wm	Apples	13 12			
Echo Printing Co	Advertising	2 24			
Evans Bros	do	2 44			
Elliott, Marr & Co	Groceries	3,381 49			
Evans, Robert & Co	Seeds	62 42			
Element, W. J	Sewer tile	118 16			
Farm Exchange account	Pork, tallow, etc	682 02			
Free Press Printing Co	Advertising and subscription	14 94			
Ferguson, John & Sons	Furniture	617 22			
Fisher, Chas. W	Apples	22 50			
Ferguson Bros	Lumber	118 00			
Forster, J. M., M.D	Travelling expenses	6 75			
Farley, Thos	Apples	12 25			
Flett, Lowndes & Co	Clothing and furnishings	230 15			
Gurney, E. & C. Co. The	Boiler	10 50			
G. N. W. Telegraph Co	Messages	24 58			
G. T. Ry. Co	Freight charges	45 85			
Gillean, Thos	Spectacles and cases	28 25			
Guymer, J	Fruit	4 00			
Green, John & Co	Dry goods, clothing, bedding, etc	1,477 39			
Gee, Dan	Straw and hay	98 82			
Girvin, D	Slaughtering cattle	60 37			
Gurd, John R	Brushes, brooms, etc	330 00			
Gumage, J. & Sons	Plants	31 05			
Glass Bros & Co	Earthenware	24 30			
Green, Thos. & Co	Panels and mouldings	10 25			
Griffin, G. J	Trees and shrubs	43 25			
Graves, O. B	Wallpaper, etc	14 00			
Gale, John	Apples	7 00			
Gale, James	do	13 50			
Heaman, Geo	Wagon repairs	411 31			
Hueston, Robt	Cab hire	222 75			
Hamilton, A. M. & Sons	Oats and salt	950 35			
Hawkins, Geo	Straw	45 63			
Hunter, R	Meat	13,189 86			
Heard, W. H. & Co	Plumbing supplies	70 20			
Horton, Jos. H	Recapturing eloper	12 10			
Hobbs Hardware Co	Hardware	745 72			
Hinton Mills M'f'g Co	Interments	156 00			
Heaman, William	Plaster, tile, fire clay	369 55			
Hyslop, William	Teaming ice	74 00			
Heaman, R	Recapturing eloper	2 00			
Hobbs, A. T	Expenses *re* transfer John McQueen	5 20			
Hyslop, Caulfield & Co	Men's furnishings	69 33			
Heighway, F. W	Harness repairs	74 50			
Heighway, R. B	Recapturing eloper	8 00			
Husband, J. & Son	Honey	100 00			
	Carried forward	50,947 92	36,884 01	173,446 48	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	50,947 92	36,884 01	173,446 48	1,413,209 63
	ASYLUM FOR THE INSANE, LONDON.—*Continued.*				
	EXPENSES.—*Continued.*				
Hoskin & Mallock	Wagon repairs	38 60			
Hunt, Lizzie	Refund fine imposed	5 00			
Infants' Home and House of Refuge	Maintenance Freddie Gunn	20 16			
Institute Deaf and Dumb	Boots and shoes	168 80			
Joiner, William	Recapturing eloper	15 65			
Johnstone, James	Brick	65 00			
Journal, St. Thomas	Advertising	2 75			
Johnson, Harry	Recapturing eloper	1 00			
Keyes, Edward	Hay	56 10			
Kingston Asylum	Brushes and brooms	48 00			
Kimball, Norman	Recovering eloper	5 00			
Lewis, Frank	Apples	46 50			
Leith, George	Oats, corn and meal	609 70			
Lewis, R	Paints and oils	451 83			
Leonard, E. & Sons	Repairs to machinery	168 97			
London Soap Co	Soap	215 95			
Lacey, R. F. & Co	Leather and findings	96 40			
Leadbeater, Fred	Steam and air feeding device	20 00			
Laing, Alex.	Potatoes	1,000 00			
Morrison, James	Plumbers' supplies	6 40			
Martin, J. W	Rent of room	1 00			
Marshall Bros	Teas	441 99			
Morkins, Edward	Rent of rooms	9 00			
Massey M'f'g Co	Rachet stand	1 50			
Main, John & Sons	Coal	479 79			
Masuret, M. & Co	Groceries	1,138 18			
Marshall, G. & Co	Tea	602 25			
Morrison, J. & W	Repairing wagons, etc	45 55			
Marshall, John & Co	Hats and mitts, etc	341 75			
Mason, Alex. M	Recovering eloper	10 75			
Mallock, Wm. & Co	Machinery and repairs	335 83			
Moore, S. J	Repairs to machinery	3 62			

Might's Directory Co	Directories	14 00			
M. C. R. R. Co	Freight charges	10 22			
Murphy, William	Cab hire *re* religious instruction	50 00			
McGrady, J	Straw	40 29			
McLean, G	Hardware	406 64			
McFee, R. C. & Co	Clothing	34 75			
McAinsh, D. T	Books for library	21 00			
McMullen, Thos	Furnishing music	30 00			
McGurdy, Thos	Reaper knife	4 25			
McGuffin, R	Hay and potatoes	65 47			
McKerlie, Wm	Recovering eloper	2 00			
McCabe, Robertson & Co	Patterns	2 38			
O'Higgins, J. P	Groceries and provisions	9,169 22			
O'Flaherty, M	Hay	124 73			
Oliver, W	Dinners to men drawing sawdust	1 25			
O'Byrne, B	Travelling expenses	12 75			
Piper, Thos	Milk	1,975 68			
Postoffice, London	Rent of P.O. drawer	9 00			
Plewes, William	Flour, bread, etc	5,750 91			
Prince, Joseph	Hay	99 00			
Perrin, D. S. & Co	Biscuits	118 31			
Patterson & Jolly	Plow points	36 70			
Planet, Chatham	Subscription	30 00			
Pavey, A. E. & Co	Clothing, etc	1,117 48			
Parisian Steam Laundry	Washing cylinder	35 50			
Pomeroy, J	Recapturing eloper	1 00			
Reid, James & Co	Hardware	1,179 85			
Robinson, Little & Co	Bedding and clothing	3,476 59			
Rogers, Samuel & Co	Oil	49 94			
Rennie, William	Seeds	28 89			
Raymer, Ernest	Recapturing elopers	18 65			
Reid Bros. & Co	Stationery	622 58			
Rolph, James	Straw	16 17			
Roughley, Geo	Gravel roofing	42 00			
Rennie, Geo. W	Travelling expenses	8 15			
Struthers, R. C	Clothing, boots and shoes	1,570 68			
Stewart, Samuel	Iron and tinware	22 54			
Stevens & Burns	Hardware	212 46			
Sefton & Co	Stationery	132 73			
Strong, W. T	Drugs and chemicals	384 86			
Stevely, Wm. & Son	Iron and tinware	538 73			
Smyth, H. C	Groceries	522 58			
Saunby, J. D	Flour, bran and rolled oats	1,536 47			
Sippi, C. A	Sundry payments	5 00			
Secretary S. S. 23, London	To equalize share of maintenance of school for children of Asylum officials	100 00			
Stevens, Clark & Stevens	Boots and shoes	1,098 20			
Sanborn, G. W	Tea	340 20			
Shuttleworth, J. R	Fruit	74 75			
	Carried forward	88,545 49	36,884 01	173,446 18	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	88,545 49	36,884 01	173,446 48	1,413,209 63
	ASYLUM FOR THE INSANE LONDON.—*Continued.*				
	EXPENSES.—*Continued.*				
Shuff, J. G	Drugs and chemicals	315 65			
Stewart, Wm	Straw	32 43			
Stevenson, John	Cleaning sewage tank, etc	79 20			
Scatcherd, W. B	Straw and wood	121 88			
Screaton, A. & Co	Furnishings, etc	406 72			
Scatherd, Edwin	Hay	164 61			
Smyth, D. W.	Poultry and eggs	66 45			
Skelly, William	Plumbing supplies	11 57			
Shedden Co. The Ltd	Cartage	1 00			
Sippi, C. A	Travelling expenses	10 70			
Stevens, Glass & Clark	Boots and shoes	350 50			
Stedman, Charlotte	Shoemakers' tools	32 72			
Stafford, Peter	Travelling expenses *re* slaughter house	13 00			
Sundry newspapers	Advertising *re* fuel and supplies	188 64			
Tripp, William	Cab hire *re* religious services	40 00			
Tyler, Alex	Groceries	1,298 79			
Temple, W	Gamble sticks	1 40			
Treblecock, Charles	Recovering eloper	2 00			
Talbot, A. & Co	Stationery, printing, etc	30 00			
Talbot, F	Straw	34 14			
Trebilcock, Thomas	Hay	9 46			
Tackabury, Jas	Straw	9 45			
Taylor, S	do	5 25			
Thurling, George	Apples	6 00			
Toronto Rubber Co	Furniture	80 00			
United Alkalie Works	Caustic potash	179 46			
Union Publishihg Co	Directory	3 00			
Vanluven & Co	Soap	140 44			
Wheeler & McLean	Hardware	36 05			
Wheler, George	Making inventory and stock list	49 00			
Wistow, Tom	Earthenware	16 50			
Westman, A	Hardware, paints and oils	68 30			
Whaley, Royce & Co	Sheet music for band	18 35			
Wakeling, Chas	Straw	8 85			

Waight, John	Music		8 00			
Walter & Hyman	Seed potatoes		110 30			
Willson, D. G	Recovering eloper		7 15			
Wortman, S. S	Fruit		26 20			
Waterous Engine Co	Grates for boiler		36 00			
Wyckoff, A	Stamped pillow shams		3 75			
Warwick & Son	Printing etc		71 24			
Yeo, N. F	Crockery, glassware and oil		1,472 35			
				94,111 99		
					130,996 00	
	ASYLUM FOR THE INSANE, KINGSTON.					
C. H. Clarke, M.D	Twelve months' salary as	Medical Superintendent	2,000 00			
J. Robinson, M.D	Seven and a half do	Assistant do	672 22			
H. E. Buchan, M.D	Four and a half do	do do	427 77			
J. Webster, M.D	Twelve do	1st Assistant Physician	749 99			
Wm. Anglin	do	Bursar	1,300 00			
Allan McLean	do	Steward	600 00			
John McManus	do	Storekeeper	700 00			
A. R. Milne	Five do	Engineer	308 30			
Wm. Potter	Seven do	do	431 70			
W. Cochrane	Twelve do	Clerk	800 00			
J. P. Pierce	do	Matron	450 00			
E. B. Martin	do	Assistant Matron	274 93			
E. Gertrude Osborne	do	Trained Nurse	210 00			
J. Dennison	do	Carpenter	500 00			
T. W. McCammon	do	Baker	400 00			
William Carr	do	Gardener	400 00			
John Redmond	do	Assistant Gardener	400 00			
Geo. Watson	do	Tailor	500 00			
J. Davidson	do	Chief Attendant	300 00			
Thos. Lonergan	do	Supervisor	360 00			
William Ross	do	Farmer	400 00			
Sundry persons	Wages of attendants, farm hands and other servants		11,501 94			
				23,686 85		
	EXPENSES.					
Wm. Anglin	Allowance for rent		150 00			
W. Cochrane	do		100 00			
Arnott, W. J	Ink wells, etc		1 25			
American Express Co	Charges		2 85			
Anglin, Wm	To pay sundries		64 52			
Alexander & Anderson	Cloth		262 62			
Anglin, S	Lumber, etc		109 53			
Boulton, J	Hay		8 55			
Bell Telephone Co	Messages and rent of instrument		85 96			
Brame, Henry	Hair and Furniture		257 96			
Behan, John J	Sugar and Tea		454 55			
	Carried forward		1,497 79	23,686 85	304,442 48	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	1,497 79	23,686 85	304,442 48	1,413,209 63
	ASYLUM FOR THE INSANE, KINGSTON.—*Continued.*				
	EXPENSES.—*Continued.*				
Baker, J. E	Maple syrup	40 59			
Beaupre, R	Manure	12 00			
Blackiston, P. & Sons	Autopsy chart	2 00			
Buchan, H. E	Travelling expenses	44 75			
British Whig	Subscription, printing and advertising	49 75			
Carson, R	Groceries and provisions	320 60			
Carson Bros	Flour, feed and provisions	454 00			
Central Prison Industries	Cloth and beds	841 75			
Caldwell, A. & Sons	Lumber, etc	232 12			
Crawford, R	Coal and wood	10,655 22			
Campbell, James	Postage	75 25			
Canadian Express' Co	Charges	19 90			
Carry, William & Son	Sheet music	58 50			
Crawford, James	Groceries	479 98			
Chown, A. & Co	Hardware	578 49			
Clarke, C. K., M.D	Travelling expenses	27 50			
Canadian Engine Co	Castings	62 87			
Cameron, L. K	Stationery	13 64			
Cleary, Archbishop	Rent of Regiopolis College	1,200 00			
C. P. R. Company	Telegraph messages	1 25			
Clarke, George	Oats	110 70			
Crumley Bros	Dry goods, etc	502 84			
Collector Customs	Duty charges	25			
Carr, William	Travelling expenses	11 55			
Cataraqui Cemetery Co	Interments	24 00			
Coglon, Isaac	Buckwheat and potatoes	14 10			
Dee, Daniel	Hay	90 40			
Draper, Geo	Pototoes	55 60			
Deeks, William A	Horseshoeing	34 37			
Draper, R. E	Hay	85 12			
Duke, John	Oats	6 20			
Dawson, D. J	Disc harrow	28 00			
Davidson, J	Expenses recovering eloper	1 00			
Dominion Express Co	Charges	10 70			

Dick, W. J. & Son	Slippers	10 50			
D. & D. Institute	Boots	36 00			
Donovan, H. B	Subscription, *Poultry Review*	2 00			
Elliott, S	Oats and hay	245 31			
Evans & Sons	Lessive phenix	141 12			
Elliott Bros	Iron and tinware	212 22			
Elliott, Edwin	Hay	45 96			
Fairfield, S	do	89 20			
Fisher, Joseph	Provisions	285 82			
Ferris, Jonathan	Manure	58 50			
Frankland, C. D	Feed and provisions	675 47			
Fee, Donald	Potatoes and carrots	141 53			
Ford Bros	Hair, leather, clover and timothy seed	43 38			
Forsyth, Andrew	Veal and lamb	16 65			
Folger, F. A	Freight on moss	1 01			
Galloway, James	Caps and mitts	115 55			
G. T. R. Co	Freight charges	62 99			
G. N. W. Telegraph Co	Messages	19 27			
Grip Publishing Co	Subscription	4 00			
Gardner, F. V	Veal and lamb	17 85			
Galloway, Tayler & Co	Castings	7 00			
Hunter, Robert	Meat	9,658 01			
Hardy, J. C. & Co	Dry goods	717 87			
Henderson, John & Co	Stationery, books and periodicals	64 30			
Hentig, S. A	Postages	83 00			
Hiscock, Jas	Groceries and fruit	202 70			
Hogan, Henry	Oats	61 76			
Hughes, D. E	Travelling expenses	3 00			
Hallingan, John & Co	Groceries	500 07			
Industries account	Scrubbing brushes	137 50			
Imperial Oil Co	Oil	185 00			
Jones, Clarence P	Music	15 00			
Johnstone, A. C. & Bro	Repairing clocks	7 25			
Joyce, Luke J	Pork	30 48			
Kingston Light & Power Co	Oil	304 00			
Keenan, W	Turnips	9 60			
Kingston Foundry & Machinery Co	Repairs to machinery	216 33			
Kingston *News*	Subscription	6 00			
K. & P. Ry. Co	Freight charges	26 06			
Kelly, T. D	Potatoes	11 25			
Kelly, W. J	Regulating Asylum clocks	5 00			
Kelly, P	Sheet music	75			
Livingston, C. & Bro	Clothing	617 74			
Lyons, P	Hay	240 21			
Lyons, N	Spectacles	23 17			
Lyons, P. jr	Hay	144 45			
Lowe, S	Vegetables	14 25			
Lonergan, F	Expenses recovering eloper	41 95			
	Carried forward	33,195 11	23,686 85	304,442 48	1,413,209 63

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	33,195 11	23,686 85	304,442 48	1,413,209 63
	ASYLUM FOR THE INSANE, KINGSTON.—*Continued.*				
	EXPENSES.—*Continued.*				
Leggatt, Thos	Matting	11 90			
Leadbeater, Fred	Steam and air feeding device	20 00			
Laidlaw, John & Son	Dry goods	6 90			
Laundry Machinery and Supply Association	Dyes	25 00			
Lawless, Edward	Interments	4 00			
Martin, A. R.	Groceries and provisions	921 90			
Martin, A. R.	Butter	2,508 84			
Methodist Book Co	Periodicals	5 50			
Massey, J., V. S	Professional services and medicines	73 50			
Mahood, W. J	Gas lighters, etc	4 40			
Martin, W. D	Flower pots	10 25			
Milne, A. R	Implements	28 50			
Mills, George & Co	Hats	48 00			
Militia Dept. Ottawa	Rent	6 80			
Marshall, John & Co	Plants	9 69			
Murray & Taylor	Dry goods	108 03			
Matheson, R	To pay sundries	50			
Milton, Daniel	Hay	27 27			
McGowan, G. A.	Tobacco stems	2 40			
Macdonald, J. A	Inspection of scales	6 00			
McKay, John	Leather and findings	493 45			
McKelvey & Birch	Plumbing and supplies	525 27			
McRae, W. R. & Co	Groceries	2,068 42			
McCallum, P	Turkeys and hay	132 67			
McNeil, Neil	Plumbing supplies	150 42			
McRae, D	Straw and hay	423 63			
McIntosh, A	Potatoes	41 46			
McLean, Allen	Travelling expenses	11 00			
McAuley, Thomas	Books and stationery	39 39			
McGrath, Joseph	Potatoes	12 93			
McFane, R.	Dry goods, etc	70 95			
Nesbet, F	Books and stationery	95 05			
Newlands, Isaac	Material for building gas furnace	71 40			

Naylor, W. H	Manure	6 40			
Oldreive & Horn	Manilla paper	17 87			
Ockley, Vincent & Sons	China	5 60			
Postoffice, Kingston	Rent of box	6 00			
Polson, N. C. & Co	Drugs and chemicals	236 32			
Pitcher & Manda	Seeds and plants	16 95			
Pantechnetheca, The	China	4 50			
Powell, J. W	Photographic supplies	3 95			
Redden, James	Groceries and provisions	3,749 64			
do	(Contract) Flour	4,251 94			
do	do Oatmeal	14 70			
Rees, E. R	Hay	182 69			
Robertson, Bros	China and glassware	518 50			
Rees, Bros	Fruits and yeast	105 70			
Rolfe, A. H. & Co	Periodicals	19 85			
Redden, John	Oats	19 70			
Rees, C. F	Hay	75 84			
Ross, William	Eggs, seed peas, wheat and manure	41 21			
Riechers, Albert	Violin strings	5 00			
Reid, James	Furniture and repairs	87 00			
Rennie, William	Field and garden seeds	29 30			
Redden, C	Hay	21 08			
Reynar, J	Tuning pianos	4 00			
Robinson, G. W	Repairs to vehicles	259 30			
Robinson, Bros	Wall, paper, etc	2 54			
Robinson, J	Mantel	17 35			
Richmond, Orr & Co	Dry goods, etc	51 20			
Ramsey, G. J. & Co	Lines for lantern	75			
Strachan, A	Hardware	682 36			
Shaw, F. & Co	Furnishings and dry goods	1,437 97			
Sundry newspapers	Advertising re supplies and fuel	147 46			
Sexton, George	Fish	215 87			
Spoor, R. J	Straw	12 10			
Spooner, C. N	Potatoes	26 00			
Swift, James & Co	Grate bars	3 20			
Smith Bros. Co	Fruit	18 20			
Snyder, H. J	Potatoes	47 10			
Tierney Bros	Sugar and tea	194 09			
Toye, R. H	Apples	75 97			
Turnbull, Thos	Exhibition photograph for patients	4 00			
Vanluven & Co	Soap	270 17			
Waddell, D. A	Harness repairs and furnishings	88 80			
Wilson, W. J	Drugs and chemicals	461 24			
Walsh & Steacy	Dry goods, etc	954 67			
Wilmott, N	Blacksmithing and horseshoeing	25 13			
Wade, Henry	Drugs and chemicals	135 21			
Walsh, M	Butchers' meat	61 33			
Whig, British	Printing and advertising	75 60			
	Carried forward	55,851 88	23,686 85	304,442 48	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	55,851 88	23,686 85	304,442 48	1,413,209 63
	ASYLUM FOR THE INSANE, KINGSTON.—*Continued.*				
	EXPENSES.—*Continued.*				
Wartman, Chas	Potatoes	14 70			
do Jacob	do	7 23			
Wilson, T. C. & Son	Livery	20 00			
Wheler, George	Services *re* air injector	33 65			
Wishart, Edward	do as carpenter	19 25			
Warwick & Sons	Printing etc.	38 44			
			55,985 15		
				79,672 00	
	ASYLUM FOR INSANE, HAMILTON.				
	SALARIES.				
James Russell, M.D.	Twelve months' salary as Medical Superintendent	2,000 04			
Thos. W. Reynolds, M.D.	do do Assistant do	1,100 04			
J. W. Forster, M.D.	do do First Assistant Physician	900 00			
F. Beamer, M.D.	do do Second do do	800 05			
B. Way	do do Bursar	1,400 04			
John P. Holden	do do Bursar's Clerk	800 04			
Daniel McCarthy	do do Storekeeper	800 04			
John Comerford	do do Assistant Storekeeper	600 00			
John Marter	do do Engineer	650 04			
Wm. Omand	do do Assistant Engineer	300 00			
Nathaniel Reid	do do Carpenter	550 08			
T. A. Sheehan	do do Assistant Carpenter	500 04			
James Martin	do do Baker	450 00			
Andrew Goodall	do do Gardener	500 04			
Thos. Wilkinson	do do Farmer	600 00			
William Gatenby	do do Tailor	500 04			
James Slater	do do Chief Attendant	300 00			
George Woolgar	do do Supervisor	264 00			
Mrs. Keegan	do do Matron	500 04			
Mrs. Parker	do do Assistant Matron	300 00			
Sundry persons	Wages of attendants, farm hands, maids and other servants	17,066 56			
			30,881 09		

	EXPENSES.				
William Gatenby	Allowance in lieu of meals and lodging	50 00			
J. P. Holden	do for board	150 00			
D. McCarthy	do do rent	250 08			
James Slater	do do	150 00			
Asylum, Kingston	Brushes	57 00			
Atchison & Co.	Lumber, etc	325 18			
Attwood, M. W. & Sons	Repairs to clock	6 85			
Archdale, Wilson & Co.	Paints, oils, brushes and brooms	108 03			
Angus, Wm.	Spring tooth cultivator	33 00			
Addison, Wm.	Music	14 00			
Ballantine Bros.	Provisions and ice	508 24			
Ballantine, R. B. and W. J.	Groceries, etc.	449 87			
Brennan, M. & Sons	Sawdust	117 87			
Bell Telephone Co.	Messages and rent of 'phone	91 80			
Burlington Cemetery	Interments	13 50			
Butland, E.	Music	64			
Bowman & Moore	Hardware	38 62			
Bassett, H. D.	Repairing sewing machine	3 10			
Bateman, P. S.	Blacksmithing	128 36			
Balfour & Co	Groceries	1,937 92			
Beardmore & Co	Leather and findings	1,030 25			
Bryant, H	Hire of wagon	2 00			
Bowlby Bros	Fruit and vegetables	4 68			
Bushnell Co. The, (Ltd.)	Oil	61 78			
Brown, John A. & Co.	Seeds and plants	52 08			
Barnard, H.	Self-inking stamp	2 50			
Baker, W. C.	Fruit	14 50			
Bird, Chas. J.	Harness dressing	1 50			
Cooper, H. G. & Co.	Wagon repairs, etc.	72 41			
Cline, R. M.	Fish	1,545 00			
Canada Glass House	Chinaware	650 77			
Chilman, R. E.	Sugar	25 20			
Canadian Express Co.	Charges	7 95			
Clark, John A.	Paints, oils, etc.	186 29			
Cowan, Charles	Services as pianist	4 00			
Clark, Fred	Expenses to Toronto *re* purchase of leather, etc.	6 05			
Caledonia Milling Co	Flour, provisions, etc.	5,043 79			
Cook & Reid	Printing	8 90			
Copp Bros	Castings, etc.	9 45			
Common Sense Mnfg. Co.	Roach exterminator	6 00			
Collector Customs	Duty charges	2 81			
Canadian Oil Co.	Oil	39 03			
Committee R C. cemetery	Interments	12 00			
Cameron, L. K.	Stationery	39			
Dixon Bros.	Fruits and fish	74 82			
Dickinson, John	Sand, wood, lime, straw, fruit and provisions	3,413 40			
	Carried forward	16,711 61	30,881 09	384,114 48	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	16,711 61	30,881 09	384,114 48	1,413,209 63
	ASYLUM FOR INSANE, HAMILTON.—*Continued.*				
	EXPENSES.—*Continued.*				
Davidson, Anthony	Wagon repairs	50			
Dewey, D. R. Coal Co	Coal	13 70			
Dodson Bros.	Castings	64			
Dominion Express Co	Charges	30			
Eastwood, J. & Co	Stationery and postages	540 27			
Eustice, John	Poultry	112 16			
Empire, Toronto	Subscription	6 00			
Elliott, Nicholas	Expenses *re* evergreens Xmas decorations	6 72			
Evans, Robert & Co.	Seeds	3 10			
Findlay, James	Replacing blood tank in slaughter house	3 50			
Foster, S. P. & Co	Flower pots	66 25			
Field, James	Potatoes and straw	52 53			
Freeman, W. A	Fertilizer, alabastine and fire brick	103 50			
Fairgrieve, J. B. & Son	Coal	225 00			
Fairley & Stewart	Plumbing, etc	31 64			
Gerrie, John W	Baking powder	97 95			
Greenhill, W.	Harness repairs	95 35			
Grossman, P. & Sons	Repairs to musical instruments	26 53			
Globe Printing Co	Subscriptions	12 00			
G. T. Railway	Charges	45 78			
G. N. W. Telegraph Co	Messages	12 53			
Grant, R. & Sons	Hops and malt	12 00			
Greening, B. Wire Co	Wire	10 12			
Gordon, L. & Co	Paints, oils, etc	66 00			
Gast & Co.	Boiler covering, etc.	18 00			
Gallagher, R. E.	Typewriter supplies	6 60			
Galbraith, Newton	Cheese, eggs and biscuits	915 57			
Glassco, G. F. & Co	Hats and caps	146 38			
Gibson, David R	Services repairing and altering furnaces	180 25			
Goodall, A	Expenses *re* selection of plants at Central Prison	2 80			
Hamilton, A. & Co	Drugs and chemicals	640 09			
Herald, Hamilton	Advertising and subscription	3 30			
Hamilton Coffee and Spice Co	Spices, etc	1,123 90			

Hamilton Gas Light Co	Gas	3,141 92			
Hope, Adam & Co	Hardware	390 83			
Hamilton Vinegar Co	Vinegar	131 14			
Humphrey & Newbury	Furnishings	2 50			
Herald, Jos.	Tuning and repairing piano	2 25			
Hardware Pub. Co.	Subscription.	2 00			
Hunter, Robt.	Meat	13,222 61			
Hair Works, New York	Amusements	1 00			
Hill, William	Salt meat	384 09			
Hopkins, Jos.	Repairing looms	9 00			
Hamilton Steamboat Co	Excursion for patients and freight charges	46 86			
Hart & Lyne	Duty charges on potash	56 10			
Hamilton Engine Packing Co.	Packing	20 00			
Irwin, W. H. & Co	City directory	2 50			
Jarvis, Archibald	Hay and straw	106 22			
Kavanagh, J. F	Poultry	110 28			
Knox, Morgan & Co.	Dry goods, etc	1,574 44			
Kerr, A. R. & Co	do	381 89			
Killey-Beckett Engine Co	Repairs to machinery	479 25			
Kerr, J. C	Hay	13 44			
Kirk, F. W	Wall paper, etc.	21 50			
Laidlaw Mfg. Co	Oven grates, etc.	99 84			
Larder, R. M	Vermin exterminator	1 00			
London China House	Glassware	8 05			
Lees, Thomas	Spectacles	10 80			
Leadbeater, Fred	Steam and air feeding devices	40 00			
Makins, E	Music at entertainments	130 00			
Mail, Toronto	Subscription	6 00			
Moodie, J. & Sons	Silk thread	33 17			
Mills, S. & Co	Hardware	77 32			
Mole, William, V.S.	Professional attendance	3 00			
Morgan Bros.	Oatmeal	630 93			
Marshall, J. A	Honey	168 80			
Morris, Thomas	Split peas, beans, hay, bran, and shorts	1,277 92			
Moore, The D. Co., Ltd.	Repairs to implements	17 30			
Malcolm and Soutar	Furniture and repairs	75 50			
Murray, A. & Co.	Bedding, clothing, etc	1,102 86			
Massey-Harris Co	Repairs to machinery	6 70			
Morton, Wm.	Fruit	7 60			
McFarlane, Alex.	Provisions	346 61			
McEvoy, Wm.	Honey	194 40			
McLaren, W. H	Butter	5,011 35			
McLaughlin, Wm	Evergreens	12 00			
McCallum & Hall	Furniture	44 75			
McKeown, H.	Harness, etc	18 25			
McKay, Samuel	Stabling for horses	26 60			
McPherson, Glassco & Co.	Groceries, etc	3,900 72			
McCardell, C. A	Stabling for horses	20 05			
	Carried forward	54,663 91	30,881 09	384,114 48	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	54,663 91	30,881 09	384,114 48	1,413,209 63
	ASYLUM FOR INSANE, HAMILTON.—*Continued.*				
	EXPENSES.—*Continued.*				
McKeown, A. H.	Iron and ironware	22 45			
McIlwraith, Thos.	Coal	11,315 90			
Noxon Bros	Casting	50			
Nelligan, J. B	Music at patients' picnic	16 00			
Oaks, Edward	Recapturing eloper	1 50			
Osburn, James & Son	Maple syrup	157 57			
Post Office, Hamilton	Rent of drawer	12 00			
Pennington & Baker	Furniture	13 75			
Pray, R. & Son	Interments	68 00			
Pratt & Watkins	Bedding, clothing, and furnishing	443 02			
Peerless Mfg. Co	Repairs, etc	5 75			
Rodger, John	Blacksmithing	27 09			
Ronsseaux, Jno. & Co	Groceries	122 52			
Reynolds, Thos. Wm	Railway fare of patient	1 45			
Ross, Andrew	Wagon repairs	4 20			
Robertson, Munro & Reid	Cloth	1,612 09			
Ross, Joseph	Blacksmithing	63 20			
Russell, J., M.D	Travelling expenses to Annual Convention, Washington, D.C	100 00			
do	Annual membership fee	5 00			
Richardson, Beer, & Caulder.	Iron castings	45 65			
Reiger, A	Repairing window guards	34 66			
Sweeney, James	Ironware, etc	40 30			
Stuart Bros	Groceries	147 08			
Squibb, Frank	Plumbing supplies	490 62			
Spectator, Hamilton	Subscription	3 00			
Singer Mfg. Co	Repairs and supplies	4 90			
Stuart, Harvey & Co	Groceries	1,549 74			
Scott Bros	Flour	1,229 96			
Sweeney, James	Iron and tinware	45 75			
Simmonds, Chas	Recovery of eloper	15 98			
Sawyer & Massey Co	Repairs to machinery	6 30			
Spooner, Alonzo D	Disinfectant	10 00			
Scott, James	Lanterns	129 88			
Stewart, John	Recovery of eloper	2 00			

Sundry newspapers	Advertising *re* supplies and fuel	155 00			
Times Printing Co	Stationery, advertising, and subscriptions	179 25			
Taylor, E	Grinding shears	4 00			
Townsend, W. G	Duty charges, etc	30 70			
True Banner, Dundas	Printing and stationery	42 00			
Troy Laundry Machinery Co.	Potash	540 00			
Ten Eyck, M.H., V.S	Medicines	1 50			
Toronto Electrical Wire Wrks	Clock dials	13 50			
Taylor, Jas. C	Crockery, etc	98 24			
Thomas, W. H. & Co	Rubber blankets	33 75			
Van Seikle, E	Recapturing sloper	22 71			
Waterworks Department	Water	1,842 75			
Watkins, T. C	Clothing	478 38			
Woods, Walter & Co	Mats	236 93			
Wood, Vallance & Co	Iron and hardware	1,578 67			
Wheler, George	Services stock taking and checking store books	165 65			
do	Travelling expenses	3 00			
Walsh, W. J	Gas fixtures	191 80			
Winnifrith, B	Groceries and provisions	113 10			
Wilson, John	Tinware and tinsmithing	30 20			
White, R. L	Duty charges on potash	343 58			
Walker, T. A	Potatoes and apples	35 60			
Wheeler, George	Putting in air injectors	10 00			
Winkler, A	Watering cask	50			
Woods, L. M	Dishes	10 64			
			78,573 20		
				109,454 29	

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173

ASYLUM FOR IDIOTS, ORILLIA.

Salaries.

A. H. Beaton, M.D	Twelve months' salary as	Medical Superintendent	1,800 00		
T. J. Muir	do	Bursar	1,100 00		
P. McAuley	do	Storekeeper	700 00		
Robt. Stratton	do	Carpenter	500 00		
Arch. Thomson	do	Farmer	450 00		
Hugh Kilpatrick	do	Baker	400 00		
John Whilton	do	Gardener	275 00		
Samuel Woods	do	Engineer	500 00		
John Malloy	do	Assistant Engineer	300 00		
A. H. Sissons	do	Chief Attendant	300 00		
Fred. Chatham	Eleven do	Messenger	220 00		
A. Gormley	One do	do	20 00		
S. E. Hardy	Twelve do	Matron	450 00		
Annie F. Brunskill	Eight do	Assistant Matron	200 00		
J. P. Gibson	Three and a half months'	salary as Assistant Matron	91 00		
M. B. Christie	Twelve months' salary as	Teacher	400 00		
Annie Lafferty	do	do	400 00		
		Carried forward	8,106 00	493,568 77	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	8,106 00		493,568 77	1,413,209 63
	ASYLUM FOR IDIOTS, ORILLIA.—*Continued.*				
	SALARIES.—*Continued.*				
H. Clifford	Twelve months' salary as Teacher	250 00			
Sundry persons	Wages attendants, maids, firemen and other servants	7,322 55			
			15,678 55		
	EXPENSES.				
James Gunn	Allowance for board	99 96			
P. McAuley	do rent	199 92			
Allen, John	Oats, teaming ice, etc	36 60			
Alexander & Anderson	Shirting, tweeds and cotton	1,312 72			
Allen, William	Turnips, potatoes and oats	38 56			
Anderson, Miller	Ironing boards	4 50			
Brammer, Robert	Castings, etc	214 60			
Boeckh, Charles	Brushes, brooms, etc	64 20			
Barnhart, H	Hay	7 66			
Ball, William	do	12 06			
Bingham, W. G	Hardware	106 42			
Black, W. & Co	Repairing furniture	14 40			
Bolster, G. J	Inspecting scales	2 60			
Bailey, Alex	Labour cutting ice	20 00			
Bell Telephone Co	Rent apparatus	78 05			
Bushnell Co. Ltd	Oil	13 83			
Beaton, A. H., M.D	Travelling expenses	106 60			
Brown Bros	Blank books	18 00			
Barks, George	Potatoes	1 39			
Bacon, William	Plants, etc	6 01			
Central Prison Industries	Flannel	1,279 37			
Cooke, H. & Co	Drugs and stationery	283 63			
Clark & Graham	Malt	9 40			
Campbell, George	Apples	10 75			
Coffy, T	Straw	27 45			
Cowan & Co	Gas retort and nipples	46 38			
Canada Health Journal	Subscription	4 50			

Cooke, T. E.	Making and trimming clothes	56 00			
Crawford, R	Fruit	5 28			
Coffy, P.	Turnips	21 96			
Cotton, D	Carrots	19 10			
Cameron, L. K	Stationery	4 29			
Dunn, Joseph	Feed and fodder	391 63			
Doyle, James	Hay	36 18			
Downie, James	do	35 12			
Downs, Johnston	do	10 70			
Downs, Robert	do	16 80			
Donnelly, R. M.	Sewing machine supplies	4 00			
Ellis & Keighley	Coffee and baking powder	352 73			
Eaton, J. R.	Repairs to buildings	92 25			
Elliott, William	Potatoes	34 10			
Eckhardt, H. P. & Co.	Groceries	169 31			
Ellis, J. W	Telegrams and express charges	2 08			
Fowlie, Albert	Duty charges	34 45			
Fyfe, John	Potatoes	34 77			
Fagan, G.	do	6 75			
Flett, Lowndes & Co.	Tailors' trimmings	54 75			
Gallagher, Wm	Straw	20 44			
G. T. Railway	Freight and repairs to siding	139 81			
Goffat, Thos	Postages and rent of P.O. drawer	82 50			
Gilchrist, John	Hay	62 48			
Graham, Richard	do	8 64			
Gowans, Kent & Co	Crockery and glassware	16 75			
Gurtzig, C	Tuning piano	4 00			
Hatley, James J.	Fish, poultry and meat	4,890 95			
Haywood, Thos	Crockery and glassware	52 85			
Harvie, D	Straw	73 63			
Haynes, F	Hay	37 50			
Hunter, Rose & Co.	Register	8 75			
Horne, John	Hay	49 76			
Harvie, W. R.	Hay and straw	29 63			
Hyslop, Caulfield & Co	Furnishings	91 98			
Harvie, C. S.	Oats, potatoes and apples	60 31			
Haynes, F.	Fruit	6 58			
Hart, Thomas	do	6 90			
Hoy, R.	Repairs to harness	3 90			
Imperial Oil Co.	Oil	383 35			
Jamieson, Jas.	Teaming ice	6 00			
Johnston, Thos	Fruit	35 15			
Kellogg, E. H. & Co	Oil	32 50			
Kieley, M.	Services as Caretaker of old Asylum grounds	183 00			
Lawrence, Geo.	Hay	10 39			
Longman, S.	do	34 08			
Longford Mfg. Co.	Pails	11 20			
Larkin, P. C. & Co	Tea	223 00			
Lamb, M	Beets	2 23			
	Carried forward	11,970 07	15,678 55	493,568 77	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	11,970 07	15,678 55	493,568 77	1,413,209 63
	ASYLUM FOR IDIOTS, ORILLIA.—*Continued.*				
	EXPENSES.—*Continued.*				
Lake, Edward	Assistance in bakery	9 00			
Lister, J	Potatoes	31 65			
Mandrell & Son	Meat, poultry and soap	328 67			
Moore, Chris	Butter, eggs and poultry	4,077 66			
Millar, Melville	Hardware	762 23			
Mulcahy, Thos	Boots, shoes and groceries	904 01			
Morrison, Edward	Repairing shoes	62 45			
Mitchell, T. B	Furniture and furnishings	75 99			
Mainer, Robt	Brushes, brooms, iron and tinware	98 93			
Murphy, Edward	Repairs to harness	33 90			
Mills, G. H	Plastering and material	72 60			
Moore & Kerr	Groceries	135 77			
Margrett, A	Furniture and repairs	97 05			
Muir, T. J	Travelling expenses	23 30			
Mercer Refm'ty for Females	Stockings	25 00			
Murphy, D	Straw	3 93			
Matheson, H	Potatoes	57 43			
Murphy, J	Hay, turnips and potatoes	151 80			
Martin, James	Turnips	20 55			
Mahony, Michael	Hay	10 16			
Maltby, S. C	Services as attendant	40 00			
McNabb, Duncan	Teaming wood and cutting hay	499 65			
McKirroll, James	Butchers' meat, fish, fruit, groceries	159 68			
McCallum & Hall	Furniture and repairs	17 40			
McKinnel, Geo	Vegetables and plants	36 02			
McKelvey & Birch	Medical sanitary basins	18 80			
McQuaig, Angus	Hay	34 27			
McCuaig, Peter	do	7 99			
McPherson, C	Plow and wheelbarrows	52 30			
McMahon, Broadfield & Co	Glassware and crockery	205 63			
McNivan, D. A	Harness	35 00			
McKinlay, D.M	Stabling horses	31 50			
McKay & Co	Yarn	95 85			
McKinnon, Jessie	Services as assistant seamstress	20 00			

Northway, John & Co	Dry goods and groceries	426 89			
Nelson, H. A. & Son	Matches, brushes and brooms	179 17			
Naughton, John	Potatoes	50 05			
Pace & Main	Clothing, groceries, etc	870 73			
Perry & Alport	Dry goods and groceries	688 88			
Perry, W. H	Blacksmithing	58 40			
Ritchie, P	Flour	44 90			
Robinson, T. H	Drugs and stationery	90 75			
Ramsey, Wm	Repairing vehicles	44 35			
Ralston, John	Shoes, etc	5 00			
Rogers & Moore	Groceries	58 59			
Robinson, Geo	Oats and potatoes	172 05			
Rouse, W. H	Potatoes	67 96			
Radcliffe, E	Potatoes and turnips	86 27			
Ross, David	Hay	12 73			
Ross, C. A	Telegrams and express charges	25 64			
Rogers, Elias & Co	Coal	13,009 02			
Rutherford, John	Potatoes	30 41			
Regan, John D	Potatoes, turnips and apples	44 05			
Regan, Thos	Potatoes, turnips and carrots	79 81			
Richardson, Beer & Caulder	Castings	11 20			
Regan, M	Expenses, recovering eloper	4 00			
Rowe, B	Straw	25 25			
Regan, M. S	Potatoes and turnips	48 05			
Swain, T	Interments	189 50			
Salter, C	Night fireman	332 00			
Selby & Co	Stationery	12 82			
Sinclair, James	Services bricklaying	3 00			
Sanderson, R. J	Coal	5 63			
Smith, C. J. Co. (Ltd)	do	237 90			
Stratton, R. S	Travelling expenses	4 85			
Sissons, A. H	Expeness recovering eloper	1 00			
Stewart, Wm	Carrots and turnips	27 73			
Spooner, Alonzo W	Disinfectant	10 00			
Sundry newspapers	Advertising *re* fuel and supplies	120 00			
Salter, Chas	Work on grounds	30 00			
Times, Orillia Pub. Co.	Stationery, etc	74 50			
Thompson, J. B	Furnishings, etc	33 10			
Thompson, W. & J	Drugs, etc	12 75			
Thomson, D. S	Wood and oats	163 69			
Troy Laundry Machinery Co.	Stove	35 00			
Tudhope Carriage Co	Repairs to carriages	34 90			
Tait, A	Lumber	76 38			
Thomson, D. C	Provisions	88 20			
Thomson, Wm	Oats	13 80			
Teskey, B	Potatoes	8 09			
United Alkali Co	Caustic potash	204 74			
Vick, George	Groceries	3,792 10			
Woods, Thos	Meat blocks, potatoes and turnips	29 74			
	Carried forward	41,881 81	15,678 55	493,568 77	1,413,209 63

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	41,881 81	15,678 55	493,568 77	1,413,209 63
	ASYLUM FOR IDIOTS, ORILLIA.—*Continued.*				
	EXPENSES.—*Continued.*				
Wilson, John E	Oil tanks, etc	17 80			
Wright, Chas	Manure	6 00			
Wheeler, George	Putting in air injectors	19 35			
Watson, S	Brick	13 00			
Warwick & Sons	Printing, etc	16 34			
			41,954 30		
				57,632 85	
	CENTRAL PRISON, TORONTO.				
	SALARIES.				
James Massie	Twelve months' salary as Warden	2,000 00			
M. Logan	do Deputy-Warden	1,400 00			
W. T. Aikins, M.D	do Physician	1,000 00			
Thomas Quinn	do Bursar	1,300 00			
J. M. Campbell	do Bookkeeper	400 00			
Alex. Jaffray	do Storekeeper	800 00			
R. M. Persse	do Clerk and Librarian	850 00			
James Clarkson	do Engineer	949 96			
G. W. Franks	do Sergeant	700 00			
C. H. Pankhurst	do Cook and Baker	650 00			
Sundry persons	Wages as guards	9,831 04			
			19,881 00		
	EXPENSES.				
J. M. Campbell	Allowance for rent	90 00			
Alexander Jaffray	do	250 00			
James Massie	Table allowance and servant	500 00			
R. M. Persse	Allowance for rent	150 00			
Thomas Quinn	do fuel and rent	300 00			
Adams, T	Meat	1,185 62			

Alexander & Anderson	Clothing and bedding	449 73			
Allan, A. A. & Co	Hats and caps	43 00			
Allen, Solomon	Vinegar	13 44			
Asylum for Insane, Kingston	Expenses *re* Stafford investigation	68 25			
Bertram, J. & A	Hardware	78 22			
Barclay, A	Rolled oats	32 35			
Boeckh, Chas. & Co	Brushes, brooms, etc	54 29			
Brown, Chas. & Co	Wagon, etc	162 35			
Brown Bros	Stationery	121 90			
Brown, William	Hardware	16 03			
Brandon M'f'g Co	Woodenware	50			
Coleman, J. F	Coal	3,978 01			
Cronin & McQuillen	Blacksmithing	143 33			
Consumers' Gas Co	Gas	1,178 90			
Coleman, C. W	Clock repairs	19 00			
Cane, William & Sons Mfg. Co	Woodenware	33 00			
Collector Customs	Duty charges	63			
Coleman, George	Pastry	9 06			
Common Sense Mfg. Co	Vermin exterminator	4 00			
Cosgrave & Co	Hops and malt	30 00			
Chandler, S. B	Keys	1 50			
Conboy, D	Repairing carriage top	75			
Central Prison Industries	Boots and shoes and clothing	3,420 75			
C. P. R. Telegraph	Messages	3 75			
Canadian Rubber Co	Packing and rubber	8 41			
Cameron, L. K	Stationery	293 72			
Doyle, M	Fish	139 80			
Dixon, H. C	Postages	126 00			
Dineen, W. & D	Caps and repairs	43 50			
Davies, William & Co	Sausage	56 16			
Davidson & Hay	Groceries	25 79			
Dixon, William	Carriage repairs	2 50			
Davies Bros	Furniture	90 00			
Delaney, Mrs. E	Furnishings	4 20			
Dossor, W. R	Cleaning chimney flues	5 00			
Eckhardt, H. P. & Co	Groceries	979 27			
Elwin, T. G	Conveyance prisoner to Asylum	3 20			
Edgar, John & Son	Glassware, china, etc	41 60			
Foot, John	Apples	7 00			
Fiddes & Hogarth	Plumbing	3 00			
Gallagher, Mrs. R. S	Fruit and fish	53 06			
Globe Printing Co	Subscriptions	10 00			
G. N. W. Tel. Co	Messages	6 03			
G. T. Railway Co	Freight charges	70			
Gurney, The E. & C. Co	Stove repairs	6 50			
Gowans, Kent & Co	China, glass, etc	3 63			
General Hospital	Attendance *re* G. W. Frank	12 00			
George, John L	Labor in garden	5 00			
Hunter, M	Hay and straw	491 12			
	Carried forward	14,755 55	19,881 00	551,201 62	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward ...	14,755 55	19,881 00	551,201 62	1,413,209 63
	CENTRAL PRISON, TORONTO.—*Continued.*				
	EXPENSES.—*Continued.*				
Hall, F. & Son	Mitts and gloves	54 50			
Hicks, T. L.	Locksmithing, etc	6 00			
Hart, J. S., M.D.	Examinations insane convicts	30 00			
Hyslop, Caulfield & Co.	Mens' furnishings	51 00			
Hunter, R.	Purchase of meat	3,801 01			
Inglis, John & Sons	Castings and repairs to machinery	80 89			
Jones, Bros. & Co.	Grinding shears	1 50			
Kearns, W. P.	Harness and repairs	22 25			
Keith, George	Garden seeds	101 95			
Kay, John Son & Co	House furnishings	41 28			
Lugsdin, J. & J.	Hats and caps	76 50			
Leslie, George & Son	Trees, shrubs, etc.	79 50			
Lang, J. W. & Co.	Groceries	812 76			
Lauder Bros.	Plumbing supplies	6 74			
Lyon & Patterson	Pens	30 00			
Miller, Hugh & Co.	Druggists' supplies	685 37			
Mercer, Andrew, Ontario Reformatory	Laundrying	1,200 00			
Mail Printing Co.	Subscription	4 00			
Myles, J. B	Flogging prisoner	15 00			
Michie & Co.	Medical comforts	107 86			
Might's Directory Co.	Directories	10 00			
Morse Soap Works	Soap	310 96			
Maguire, William	Alabastine	20 00			
Mason & Risch	Tuning instruments and repairs	4 00			
Montgomery, L. B. & Co.	Asbestos	2 10			
McIntosh, P. & Son	Provisions	436 28			
McMaster & Co.	Cottons, etc.	141 31			
McIntosh, James	Provisions	1,126 73			
McDowall, W.	Ammunition	11 25			

Nelson, H. A & Sons	Brushes, brooms, etc	171 48			
Nicholson, Chas. W	Christmas donation	50			
O'Malley, J. & J. L	Laying carpet	2 70			
Park, James & Son	Provisions, etc.	11 96			
Prisoners' Aid Association	Cab hire, *re* religious services	450 00			
Potter, Charles	Spectacles	27 55			
Pantechnetheca, The	China, glassware, etc.	10 50			
Pankhurst, C. H.	Yeast	2 25			
Ryan, William	Provisions	6,860 54			
Robertson, J.	Express charges	30			
Ramsay, J. G. & Co	Photographic supplies	91 70			
Ryan, J. & Co	Tea	344 40			
Robertson, James, & Co	Hardware	12 96			
Rice Lewis & Son (Ltd)	do	43 82			
Rand, Rufus	Horse	150 00			
Rose Cartage Co.	Cartage	10 40			
Smith, A., V. S.	Professional attendance, medicine, etc.	23 25			
Sinclair, Miss	Butter	54 26			
Street Railway Co.	Tickets	29 00			
St. Michael's Cathedral	Cab hire *re* religious services	250 00			
Smith, The C. J. Co	Coal	88 00			
Stock Company	Gravel	72 00			
Sellers, C. & Co.	Gratings	11 25			
Stewart & Wood	Alabastine	45 00			
Strange, F. W., M.D	Consultation *re* Geo. H. Sweetman	10 00			
Smith, E. H	China, glassware, etc.	23 59			
Smith Coal Co. The, (Ltd)	Coal	1,297 61			
Saunders, Pearcy & Co.	Glass	6 54			
Sundry newspapers	Advertising *re* fuel and supplies	108 89			
Terry, Edward	Cement, alabastine, etc.	80 00			
Toronto Ice Co	Ice	208 50			
Toronto Weekly Railway and Steamboat Guide Co.	Subscription	2 60			
Toronto Suspender Co	Elastic web	36 15			
Vanderburgh, A.	Christmas donation	2 00			
Van Luven & Co	Soap	27 30			
Williams, A. R	Machinery and supplies	325 60			
Water works, Toronto	Water	1,849 84			
Wheeler & Bain	Furnishings	79 46			
Williams, Robert	Sand	11 20			
Watson Coffee and Spice Milling Co. (Ltd)	Coffee	126 56			
Wilson, James	Brushes	13 50			
Wagner, W. J., M.D	Examination insane convict	4 00			
Warwick & Sons	Printing, etc	25 77			
Wells, James	Upholstering	17 00			
York Street stables	Carriage hire	8 75			
			37,053 88		
				56,934 88	
	Carried forward			608,136 50	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			608,136 50	1,413,209 63
	CENTRAL PRISON INDUSTRIES.				
	SALARIES.				
J. M. Campbell	Twelve months' salary as Accountant	400 0			
John White	do Master Shoemaker	800 00			
T. B. Home	do do tailor	800 00			
P. Stafford	Ten do Carpenter	583 30			
William Crackle	Twelve do Mason	670 00			
William Husted	do Gardener	720 00			
Henry Butwell	do Foreman Brickmaker	720 00			
P. T. McKay	do Manager	1,000 00			
William R. Hardy	do Finisher	650 00			
William McKenzie	do Painter	487 44			
S. Smith	do Machinist	1,000 00			
Sundry persons	Wages of guards, watchmen, etc	4,308 00			
			12,138 74		
	EXPENSES.				
J. M. Campbell	Allowance for rent	90 00			
William Crackle	do	30 00			
William Huston	do	30 00			
Alexander & Anderson	Cloth	1,106 89			
Anderson, G. R. & Bro	Making and trimming clothes	15 50			
American Express Co	Charges	40			
American Oil Co	Oil	164 81			
Asmas, Louis	Lumber, etc	128 76			
Bertram, J. & A	Hardware	206 36			
Beardmore & Co	Leather and findings	1,387 33			
Boeckh, Chas. & Son	Brushes, etc	95 57			
Brandon Mnfg. Co	Ladder	1 50			
Brown Bros	Blank books	32 45			
Bell, Andrews & Co	Manilla hemp	14,562 68			
Bertram & Co	Hardware	1,100 21			
Booth & Son	Brass castings	90 99			
Buntin, Reid & Co	Stationery	36 78			

Buffalo Bedstead Co	Castings, etc	29 72			
Brunt, E	Services as carpenter	14 90			
Banfield, W. H	Machinery	119 96			
Coleman, J. F	Coal	1,232 38			
C. P. R. Co	Freight charges	376 03			
C. P. R. Telegraph	Messages	5 40			
Creelman Bros	Machinery and supplies	47 50			
Canadian Express Co	Charges	18 00			
Canadian Rubber Co	Hose, tubing, cord and boots	52 83			
Chrysler & Lewis	Service in Patent Office, Ottawa, *re* binder twine machinery	11 50			
Carre, R	Service packing blankets	10 00			
Canadian Wool Co	Boiler covering	57 80			
Consumers' Gas Co	Coke	4 00			
Clouse, Elias M.D	Professional services *re* G. H. Sweetman	58 50			
Dominion Express Co	Charges	12 85			
Dixon, H. C	Postage	46 00			
Dean, Thomas	Brass castings	33 95			
Doig, A. E	Machinery and repairs	19 20			
Dodge Wood Split Pulley Co	Pulleys	17 76			
Darling, Robert & Co	Cloths	761 19			
Dominion Wire Mfg. Co	Wire	15 55			
Dickinson, C. D. & Son	Brooms and needles	56 00			
Dixon, F. E & Co	Belting	66 30			
Frost, William H	Castings	683 96			
Frind, Paul & Co	Supplies for woollen mill	130 90			
Flett, Lowndes & Co	Tailors' trimmings, etc	212 53			
Flett, J. A	Services as carpenter	7 40			
Gast & Co	Pipe covering	9 00			
Gurney, The E. C. Co	Patterns and castings	17 75			
G. T. R. Co	Freight charges	679 81			
G. N. W. Tel. Co	Messages	11 90			
Graham, Thos. & Sons	Rasps	16 36			
Gall Lumber Co	Lumber	707 56			
Hallam, John	Leather, wool, etc	12,777 93			
Haworth, Geo. F. & Co	Leather belting	295 19			
Hunter, M	Hay and straw	345 77			
Howland, H. S. Sons & Co	Hardware	935 13			
Hughes, M. L	Cloths, etc	991 05			
Hay, Peter	Planer knives	18 48			
Hubbs, O. C	Oil	2 25			
Inglis, John & Sons	Castings and repairs	346 39			
Kay, John Son & Co	Furnishings	18 76			
Kiser, Thomas	Sand	19 50			
Kellogg, E. H. & Co	Oil	46 00			
King Bros	Leather and findings	749 66			
Leckie, J	Clothing	131 79			
Lear, R. H. & Co	Atmospheric burners	4 00			
Lauder Bros	Repairs to machinery	26 30			
Lee, James	Sand	91 50			
	Carried forward	41,424 42	12,138 74	608,130 50	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Carried forward	41,424 42	12,138 74	608,136 50	1,413,209 63
	CENTRAL PRISON INDUSTRIES.—*Continued*				
	EXPENSES.—*Continued.*				
Miller, Hugh & Co	Drugs and chemicals	279 38			
Massie, James	Travelling expenses	88 81			
Meadows, S	Brass castings	361 78			
Miller & Richards	Press roller	1 25			
Meiners, Bernhard	Bronze	18 00			
Meadows, G. B	Wire cloth, etc	36 24			
Montgomery, L. B. & Co	Graphite	40			
Miles, G. G	Estimating material for industries	27 50			
McKenzie, William	Gratuity on retiring from service	108 32			
McGill, William & Co	Coal	186 18			
McKay, P. T	Travelling expenses *re* machinery purchase	29 50			
McColl Bros. & Co	Oil	489 02			
McLean, Daniel	Leather and findings	690 30			
McMaster & Co	Clothing and bedding	672 49			
McDonald, M	Board in *re* injury in broom shop	5 00			
McGregor, Gourley & Co	Machinery	18 00			
Macdonald, John & Co	Cloth	49 50			
McFarlane, A. C	Labor on patterns	71 05			
Noxon, James	Services	153 60			
Ontario Forge and Bolt Co	Eyelets, nails, etc	149 45			
Rice Lewis & Son Ltd	Hardware	540 21			
Royal Oil Co	Oils	49 93			
Robertson, J	Customs and express charges	28 05			
Robertson, James & Co	Repairs for machinery	29 05			
Robinson and Heath	Castings and freight and duty charges	109 62			
Rogers, Charles & Sons Co	Mattrasses	39 00			
Ridout, D. C	For use of patents for wire beds and attachments	810 00			
Sanderson, Pearcy & Co	Paints and oils	305 41			
Street Railway Company	Tickets	29 00			
Smith, The C. J. Coal Co	Wood	460 00			
Smith, Charles & Co	Machinery	29 60			
Smith, John B. & Sons	Lumber	211 73			
Sellers, C. & Co	Castings	39 69			
Stockwell, S	Tongs	11 00			

Smith Coal Co	Coal	2,314 83			
Selway & Lendon	Lasts	10 50			
Stafford, P	Balance travelling expenses *re* slaughter house	7 50			
Smith, Hugh	Cartage	1 88			
Singer Manufacturing Co	Machine	40 00			
Sundry persons	Work in carpenter shop	21 00			
do	do machine do	176 50			
do	do shoe do	5 00			
do	do new building	5 00			
do	do woolen mill	203 61			
do	do tailor shop	141 15			
do	do paint do	42 00			
do	do north do	139 40			
do	do making brooms	840 39			
do	do do bricks	273 79			
do	do bricklaying	11 27			
do	do as masons	126 15			
Toronto Lead & Color Co	Paints and oils	301 41			
Toronto Silver Plate Co	Plating	30			
Townson, Henry	Shears	2 56			
Turner, John & Son	Repairs for machinery	10 25			
Thompson, D. W. & Co	Excelsior packing	1 67			
Tennant, A. J. & Co	Lumber	979 17			
Wilson, C. & Son	Repairs to scales	7 90			
Williams, A. R	Machinery	13 22			
Wheeler & Bain	Hardware	74 75			
Williamson, R. C	Sewing machine supplies	15 75			
Whitney, Baxter D	Castings	9 00			
West Publishing Co	Subscription to *Journal of Fashion*	7 25			
Washburn & Moen Mfg. Co	Galvanized wire	306 02			
Walker, J. Estate	Repairs to barrows	29 50			
			53,674 23		
				65,812 97	

REFORMATORY FOR BOYS, PENETANGUISHENE.

Salaries.

Thos. McCrosson	Twelve months' salary as Superintendent	1,800 00				
Richard H. Steadman	do Deputy Superintendent	950 00				
William P. Band	do Bursar	900 00				
P. H. Spohn, M.D.	do Physician	700 00				
Rev. James Gibbon	do Roman Catholic Chaplain	600 00				
Rev. Stephen Card	do Protestant do	600 00				
J. C. McPherson	do do School Teacher	600 00				
Donald Ferguson	do do Assistant do	450 00				
J. McNamara	do Roman Catholic do	600 00				
Alex. McKellar	do Steward and Storekeeper	800 00				
W. H. Smith	do Carpenter	600 00				
R. C. Trott	do Engineer	600 00				
	Carried forward	9,200 00		673,949 47	1,413,209 63	

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	9,200 00		673,949 47	1,413,209 63
	REFORMATORY FOR BOYS.—*Continued.*				
	SALARIES.—*Continued.*				
William Sale	Twelve months' salary as Baker	450 00			
James O'Byrne	do Shoemaker	550 00			
John Jamieson	do Tailor	600 00			
William Young	Ten do Farmer	375 00			
William Stewart	Two do do	75 00			
Thomas Harford	do Gardener	400 00			
Donald Rae	do Chief Night Attendant	500 00			
John Allen	do Stable-keeper	400 00			
Samuel Dean	Five do Gate-keeper	166 65			
Sundry persons	Wages of guards and other officers	3,771 34			
			16,487 99		
	EXPENSES.				
William H. Allen	Allowance for rent	40 00			
D. Cunningham	do	30 00			
Frank Champion	do	60 00			
A. Doult	do	28 57			
Donald Ferguson	do	60 00			
James McNamara	do	60 00			
John McMillan	do	24 76			
William Stewart	do	10 00			
R. C. Trott	do	60 00			
William Young	do	60 00			
Thomas Redmond	do	27 38			
Allen, Solomon	Cider	6 50			
Allen, Mrs. Johanna	Hay	64 79			
Alexander & Anderson	Cloth	3,975 76			
Allen, John	Board and lodging for carpenter	9 89			
Allen, Henry	Expenses recovering elopers	5 00			
Amelin, Xavier	Straw hats	5 76			
Allen, P. C.	Games, etc	54 30			
Allen, J. A.	Drilling and blasting boulder	1 00			

Beck, The C. Mfg Co.	Groceries, oils, etc.	1,025 43			
Brown Bros.	Stationery, blank books, etc.	59 60			
Brithaupt Bros. & Hall	Leather and findings	726 24			
Bryant, The J. E. Co	S. S. lesson leaflets	9 55			
Blanchard, W.	Service laying brick	13 75			
Bell Telephone Co.	Rent of apparatus	35 00			
Bain, James & Son	Periodicals and stationery	4 75			
Briggs, William	Catechisms	3 00			
Barclay, A.	Barley, peas, etc.	59 30			
Coleman-Hamilton Co.	Tile	6 00			
Champion, James	Wood	1,123 33			
Copeland, G. & Sons	Flour, corn, bran, etc.	2,210 88			
Casselman, W. A	Hay	101 80			
Crosson, William	Hay, Straw, etc.	67 41			
Currie, Rev. Hugh	To pay horse hire	45 85			
Clarke, George	Duty charges	13 21			
Carty, James	Straw	159 11			
Charlebois, Mrs. T.	Livery	16 09			
Courtemanche, N.	Mitts	12 00			
Cameron, D. H	Boiler compound	10 00			
Cameron, L. K	Stationery	135 94			
Canadian Express Co	Charges	2 90			
Chalne, A. J.	Flower pots and hanging baskets	20 00			
Central Prison Industries	Boots, cloth, etc	572 80			
Corbeau, F. H.	Woodenware, undertaking, etc.	39 00			
Cunningham, D.	Expenses recovering eloper	1 50			
Champion, Frank	Board for George Wheeler	9 50			
Charlebois, Ed. J	Livery *re* recovery of eloper	6 00			
Dean, Stewart	Services as Supervisor of laundry	181 48			
Darling, J. S.	Stationery, postage, telegrams, etc.	151 12			
Durnford, A.	Freight charges	64 14			
Dance, W. J	Service as nurse	10 00			
Dewel, Jeremiah	do at fire	1 50			
Davidson, D	Lumber	19 95			
Devlin Charles	Meals for Jubilee Singers	1 75			
Dubeau, Joseph	Livery, teaming, etc.	41 50			
Dunnett, Thomas & Co	Hats	83 00			
Dean, Samuel	Six days' balance of salary as gate-keeper	6 66			
Dusome, J. P.	Making and trimming uniform	10 85			
Dault, A.	Expenses recovering eloper	2 50			
Duthie, G. & Sons	Repairs to slate roof	10 30			
Doit à Fréchon & Cie	Scapulars	2 62			
Dion, Joseph	Repairs to chimney and stone sills	15 00			
Day, Isaac	Services *re* examination of Reformatory schools	60 00			
Elliott, Robert	Livery	15 00			
Fitzpatrick, Thomas	Expenses recovering eloper	3 00			
Gibbons, Rev. James	Services in chapel	30 00			
G. T. Railway	Freight charges	51 87			
Gendron, C. G	Hair for plaster	13 20			
	Carried forward	11,849 08	16,487 99	673,949 47	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	11,849 08	16,487 99	673,949 47	1,413,209 63
	REFORMATORY FOR BOYS.—*Continued.*				
	EXPENSES.—*Continued.*				
Gilbert, Henry	Maple trees	2 70			
Gahan, B. T., M.D.	Professional services	5 00			
Hayes, Edward	Oats	103 65			
Hewson & Charlebois	Printing and advertising	29 49			
Harford, Thomas	Expenses recovering elopers	9 20			
Hart & Co.	Periodicals	6 45			
Henderson, J	Hardware	4 90			
Hooper & Co	Drugs and chemicals	7 00			
Herbert, E	Digging grave	1 50			
Ingram, Walter	Mason work	55 00			
Jennings, H.	Express charges	5 75			
Jewett, Thomas	Services as laundry attendant	101 50			
Kellogg, E. H. & Co.	Oil	106 25			
Keith & Fitzsimons	Plumbers' supplies	8 25			
Kingston, Rev. G. M	To pay horse hire	50 00			
Leonard, John	Hay, Oats, etc.	143 56			
Lalonde, Joseph	Oats, straw, etc.	116 76			
Lawson, E	Tea	10 50			
Lemoine, William	Service of tug moving buoy and delivering coal	70 00			
Lyons, John	Inspection scales	4 50			
Maloney, H. & Co.	Peas, hay, etc	427 11			
Moylan, James	Hay, straw	52 03			
Morse Soap Works	Soap stock	111 07			
Mercer Reform'try for Females	Socks	179 10			
Moloney & Wright	Corn	402 00			
Moloney, H.	Meals for men on evening of fire	15 00			
Moloney, H. & Co.	Groceries	110 00			
Malcolm, W. B.	Injection pumps	5 00			
McGuire, W. J. & Co.	Plumbing supplies	117 03			
McMillan, John	Straw, fish, fruit, etc	47 18			
McCrosson, Thomas	Travelling expenses	23 65			
do	To pay servants	190 00			
McCorvie, N	Livery *re* recovery of elopers	7 00			
McNamara, Ann	Telephone	25			

Nettleton, Chas. A	Drugs and stationery	212 73			
Nelsen, H. A. & Sons	Brooms	133 90			
Northey M'f'g Co	Repairs for pumps	17 90			
O'Keefe & Co.	Malt	26 45			
Picotte, Napoleon	Expenses recovering elopers	10 00			
Picotte, Julius	do	10 00			
Payette, P. & Co	Machinery and castings	53 80			
Paul Bros. & Davenport	Lumber	25 25			
Parker, R. J	Cutlery	1 75			
Redmond, Thos	Salary as relieving guard	149 97			
Ryan, Wm	Provisions	136 10			
Roberts, John	Hay	105 65			
Rice Lewis & Son	Hardware	34 63			
Rourke, A	Expenses recovering elopers	4 80			
Rice, T. J	Wire goods	6 00			
Rayner, A. J	Clothing	24 75			
Randell, Geoffrey J	Fruit	5 32			
Rogers, Samuel & Co	Oil	493 81			
Robinson, Geo	Painting corridors	18 00			
Rennie, Wm	Seeds	66 96			
Rourke, Sarah	Renewing pillows	3 00			
Smith, James	Carriage hire	1 50			
Sneath, A	Express charges and telephone	45 25			
Sinnott, James	Services as Assistant Engineer	45 75			
Samuels, E. A	Music	6 00			
Strathearn, I. B	Repairing musical instruments	2 00			
Stedman, R. H	Meals furnished patient in hospital	24 30			
Smith, Andrew	Service at fire	1 50			
Shanahan, D. J	Repairs to vehicles	304 08			
Smith, W. H	Expenses recovering eloper	15 85			
Singer M'f'g Co	Supplies	8 46			
S. S. 7, Tay	Government grant	150 00			
Sinclair, J. A., V.S	Professional services	10 00			
Simon, Henry	Axe handles	6 12			
Sadlier, D. & J. Co	Wax tapers	11 25			
Smith, C. J. Coal Co. Ltd	Coal	304 41			
Sneath, A., Bailiff	Lumber	79 97			
Sweet, Silas	Straw	14 07			
Sundry newspapers	Advertising re supplies	25 00			
Stewart, Wm	Travelling expenses	10 65			
Thompson, W. M	Oats and hay	415 61			
Thomson, Wm., V.S.	Professional services	10 60			
Toronto Cap M'f'g Co	Caps	30 00			
Toronto News Co	Periodicals	36 92			
Upper Canada Tract Society	Text cards	21 60			
Unigall & Plouffe	Harness and repairs	206 95			
VanLuvan & Co.	Soap	14 63			
Wright, Chas. E	Meat	1,926 43			
	Carried forward	19,676,56	16,487 99	673,949 47	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	19,676 56	16,487 99	673,949 47	1,413,209 63
	REFORMATORY FOR BOYS.—*Continued.*				
	EXPENSES.—*Continued.*				
West, William	Brick	7 25			
Warwick & Sons	Stationery and books	131 14			
Wright, G. H	Groceries, paints, oils and hardware	1,297 92			
Wood, W. Loyd	Drugs and chemicals	21 52			
Wheeler & Bain	Lamp goods and oil	355 40			
Wheeler, George	Services taking stock, etc	57 70			
Young, William	Expenses recovering of elopers	14 15			
			21,561 64		
	INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE.			38,049 63	
	SALARIES.				
R. Mathison	Twelve months' salary as Superintendent	1,749 99			
J. E. Eakins	do Physician	650 00			
A. Matheson	do Bursar	850 00			
D. R. Colman	do Teacher	1,200 00			
D. M. Beaton	do do	560 00			
Saul Deny	do do	1,000 00			
J. C. Balis	do do	1,000 00			
J. B. Ashley	do do	1,000 00			
Miss Margery Corlette	do do	499 92			
Miss Effie Terrill	do do	650 00			
Miss Sara Templeton	do do	700 00			
Miss Carrie Colman	Eight do do	133 28			
Miss Florence Maybee	Twelve do do	400 00			
Miss S. C. Balis	do do	500 00			
Miss M. M. Ostrom	Four do do	216 72			
Miss Mary Bull	Twelve do Monitor	300 00			
D. J. McKillop	do do	400 00			
Miss Ada James	Three and a half months' salary as Monitor	44 58			
Miss I. M. Walker	Twelve do Matron and housekeeper	437 49			
William Hart	Three and a half do Storekeeper and clerk	197 06			

J. G. Smith	Five and a half do do	317 46			
William Douglas	Two and a half do do	125 00			
William Douglas	Nine and one-half do Supervisor of boys	435 38			
R. A. O'Meara	Two and one-half do do	75 00			
Miss Annie Gallagher	Twelve months' salary as Instructress of sewing girls	300 00			
M. O'Meara	do Farmer	400 00			
Frank Flynn	do Carpenter	549 96			
William Nurse	do Shoemaker	550 00			
Joseph Middlemiss	do Engineer	600 00			
D. Cunningham	do Baker	425 00			
Thomas Wills	do Gardener	300 00			
Sundry persons	Wages of other officers and servants	3,945 19			
			20,452 03		
	EXPENSES.				
A. Matheson	Allowance in lieu of supplies	150 00			
Ashley Carriage Works	Repairs to vehicles	61 75			
Appleton, D. & Co	Books	6 00			
Ashley, J. B.	Pupils' travelling expenses	15 75			
Allen, Percy	do	2 60			
Arnott, George	Fruit	18 75			
American Annals of the Deaf	Books	99 50			
American Oil Co	Oil	76 80			
Ackerill, D. H., V.S.	Professional attendance and medicine	18 25			
Bonter, E. R.	Honey and poultry	58 77			
Brignall & Thompson	Dry goods	284 01			
Bell Telephone Co.	Messages	10 73			
Brown, J. & G. M'f'g Co.	Castings, etc.	218 95			
Bryant, John	Rebuilding chimney	2 50			
Black, William	Fish	38 93			
Brown, George H	Repairs to vehicles	116 00			
Bolderick, James	Straw	3 00			
Barnes, Joseph	Maps	3 45			
Brown, Arthur	Travelling expenses and services *re* examination of schools	58 75			
Beaton, D. M.	Pupils travelling expenses	10 00			
Belleville, *Ontario*	Subscription and advertising	26 65			
Bay Quinte Agricultural Society	Admission to grounds	5 00			
Bowlby Bros. & Co.	Canned vegetables and fruit	69 20			
Brown Bros.	Stationers' supplies	2 00			
Conger Bros	Groceries, etc.	410 13			
Coleman, E. H	Poultry, milk, etc	516 15			
Carmichael, W. R.	Drugs and chemicals	78 46			
Canadian Express Co	Charges	22 00			
C. P. R. Telegraph	Messages	15 68			
	Carried forward	2,400 06	20,452 03	711,999 10	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	2,400 06	20,452 03	711,999 10	1,413,209 63
	INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE.—*Con.*				
	EXPENSES.—*Continued.*				
Canadian Subscription and Publishing Co	Books	15 10			
Carman, T. S	Printing and stationery	7 00			
Casey, William	Hay	12 40			
Chown, W. W. & Co	Plumbing supplies	112 40			
Conger, James A	Crockery and glassware	132 23			
Copeland, James	Repairs to harness, etc	50 50			
Cauniff, P. F	Butter	9 11			
Colman, D. R	Pupils' travelling expenses	28 80			
Central Prison Industries	Castor rollers	6 25			
Cook, David C. Pub. Co	Books	32 20			
Canada Plating Co	Plating	10 75			
Collector Customs	Duty charges	17 28			
Cheeseworth, Richard	Might's directory	5 00			
Cameron, L. K	Stationery	228 48			
Caldwell, Joseph, L.D.S	Professional services	27 50			
Canadian office and school furniture Co	Inkwells and covers	9 00			
Cronk, H. W	Livery	12 50			
Dickens, H. C. & Son	Oysters	36 00			
Douglas, William	Pupils' travelling expenses	2 30			
Deny, Paul	do do	25 50			
Deacon, W	Books	1 00			
Dominion Illustrated	Subscription	1 50			
Dominion Express Co	Charges	40			
Eccles, George	Service of animal	5 00			
Empire Printing Co	Advertising	1 00			
Emmons, R	Services as Carpenter	18 00			
Evans & Son	Lessive phenix	39 20			
Fleischman & Co	Yeast	97 05			
Foster, C. B	Cordwood, etc	420 00			
Foster, James	Repairs to time detector	12 25			
Foster & Foster	Plumbing	4 90			
Frost, John G	Furnishings and repairs to furniture	276 87			

Gas Co., Belleville	Gas	1,111 07			
Green, Charles	Meat, poultry, etc	120 54			
G. T. R. Co	Freight charges	67 11			
Grafton, F. E. & Sons	Periodicals	22 40			
G. N. W. Telegraph Co	Messages	6 63			
Grip Printing & Pub. Co	Subscription to *Educational Journal*	3 00			
Green, John	Services in garden	72 00			
Gallagher, Annie	Pupils' travelling expenses	9 40			
Gwatkin & Son	Printers' furnishings	14 40			
Globe Printing Co	Advertising	2 00			
Hannly & Co	Disinfectant	10 00			
Hogan, M	Cartage	2 50			
Hanley, J. C. & Co	Provisions	312 03			
Hospital, Belleville	Services of nurse	5 00			
Hodgson, Ed	Printing	1 00			
Hayter, J. A	Tuning piano	2 00			
Harrison, E	Stationery	1 75			
Hart, Philip	Horse shoeing, blacksmithing, etc	66 65			
Hodge, James	Repairs to pump	1 00			
Intelligencer Ptg. & Pub. Co	Subscription, advertising and stationery	17 90			
Irvine, H	Teaming	2 00			
Institution Shoe Shop	Shoes and repairs	181 00			
Irvine, George	Teaming	9 00			
Johnston, Benjamin	Filling ice houses	85 60			
Jones, Abel	Hay	49 89			
Jeffrey, F	Threshing grain	8 89			
Knox, A	Groceries and provisions	341 82			
Knox, James	Hay	13 75			
Kellogg E. L. & Co	Books	75			
Keegan, Dennis	Labor *re* water pipe	9 75			
Lang, Charles	Services repairing buildings	328 75			
Lake, J. C	Livery	1 50			
Lugham, W. H	Flour and oats	1,495 60			
Lewis, John	Hardware	122 09			
Lyons, N	Spectacles	6 50			
Leahy, George	Hay	15 94			
Lockerty, Mrs. T	Tobacco leaves	50			
Lister Bros	Fruit	38 50			
Lazier, S. A	Rolled oats	32 90			
Leavens, D. R	Ice	51 75			
Meagher, James	Provisions and produce	466 95			
Massey, L	Hay and straw	14 00			
Mathison, R	Pupils' travelling expenses	35 42			
do	Travelling expenses	12 01			
Moon, Malcolm	Painting and kalsomining	62 00			
Malcolm, William	Lava tips	7 20			
Mail Ptg. Co	Advertising	2 00			
Mathison, R	Travelling expenses *re* Convention Superintendents at Colorado Springs	95 60			
Maybee, Florence	Pupils travelling expenses	4 50			
	Brought forward	9,401 47	20,452 03	711,999 10	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	9,401 47	20,452 03	711,999 10	1,413,209 63
	INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE. *Continued.*				
	EXPENSES.—*Continued.*				
Milne, P	Cordwood	285 00			
McGee, William	Repairs for stoves, etc	160 44			
McDiarmid, H. C	Services as printer	10 00			
McMullen, John	Fruit	7 50			
McCoy Bros	Livery	10 00			
Nelson, H. A. & Sons	Brooms	143 33			
Nurse, William	Pupils' travelling expenses	15 70			
News-Argus, Stirling	Advertisement	50			
Nasmith Co., Limited	Luncheons on train for returning pupils	22 85			
Oak Hall	Clothing	21 50			
Ostrom, M. M	Pupils' travelling expenses	5 35			
Ori, P. J	Clocks	6 00			
Patterson, William & Son	Biscuits, sugar and syrup	211 52			
Pringle, A. N	Lumber, etc	196 75			
Patterson, A	Teaming	6 00			
Penton, W. N	Use of reaper, etc	8 00			
Post office	Rent of drawer and postage stamps	159 82			
Potter, S. S	Plants	1 59			
Ritchie, George & Co	Cloths, furnishings, etc	285 55			
Rathbun Co	Coal	3,765 84			
Rowe, H. A	Straw	12 00			
Rennie, William	Seeds	27 60			
Robinson, A	Stationery and subscriptions	86 48			
Reid, W. J. & Co	Crockery, etc	46 54			
Reid, W. C	Fruit trees	1 50			
Sprague, John & Son	Butter, poultry and fruit	2,342 31			
Stroud Bros	Coffee and tea	460 92			
Scantlebury, C. B	Stationery, etc	275 08			
Standard Fertilizer & Chemical Co.	Fertilizer	52 50			
Saint Cyr, Eugene	Object lesson cards	4 00			
Spangenburg, S. A	Repairing clocks	11 25			
Steele Bros. Co	Seeds, etc	7 50			

Scott, David	Hay		15 30			
Smith, J. E	Pupils' travelling expenses		4 25			
Sterichs, E. D	Bread		9 72			
Soule, Louis	Repairing water pipes		6 00			
Sero, Fred	Trimming horses		2 50			
Sundry newspapers	Advertising re supplies and fuel		73 05			
Thomas, George I	Poultry and meat		2,700 75			
Templeton, R	Drugs and chemicals		175 36			
Taylor, S	Postages		23 00			
Taugher, John	Repairs to pump		17 25			
Turner, Job	Lectures		10 00			
Telegram, Toronto	Advertising		1 00			
Times Ptg. Co., Hamilton	do		1 00			
Templeton, Sara	Pupils' travelling expenses		5 50			
Union Oil Co	Soap stock		69 52			
Vanhuyen & Co	Soap		10 72			
Vermilyea, J. W	Oats		31 50			
Vandewater, David	Poultry		44 00			
Waterworks Co.	Water		155 23			
Warwick & Sons	Printing, etc		124 26			
Waters, D. M	Drugs and chemicals		49 83			
Walker, Hugh	Excursion per steamer for pupils		30 00			
Wadsell, R	Cartage		1 00			
Wickett, James	Sand		2 75			
Walmsley, J. E. & Co	Groceries, etc		642 22			
Walker, J. W	Saddlery, etc		333 83			
Wallace, A	Groceries and provisions		438 36			
Williamson, William	Soap		350 60			
Wilson, W	Hay		19 67			
Walker Co. The	Repairs for implements		80 60			
Wallbridge & Clark	Cheese		7 60			
World New-paper Co	Advertising		1 00			
Walker, I. M	Railway fare for indigent pupil		2 30			
Young, J. E	Repairs to vehicles		2 25			
Zufeldt, G. A	Vegetables and fruit		24 75			
				23,518 97		
					43,971 00	

INSTITUTION FOR THE BLIND, BRANTFORD.

Salaries.

A. H. Dymond	Twelve months' salary as	Principal	1,799 99			
W. N. Hosse	do	Bursar	900 00			
D. Marquis, M. D	do	Physician	600 00			
Miss M. B. Dunn	do	Matron	399 96			
Miss Margaret E. Walsh	do	Teacher	500 04			
Miss C. Gilson	do	do	500 04			
Miss Amanda F. Davy	do	do	399 96			
	Carried forward		5,099 99		755,970 10	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	5,099 99		755,970 10	1,413,209 63
	INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*				
	SALARIES.—*Continued.*				
Miss Emma Moore	Twelve months' salary as Teacher	500 04			
Miss Elsie J. Plewes	do do	399 96			
Miss Elizabeth Loveys	do do	300 00			
Miss L. H. Haycock	do do	275 01			
Miss Emma Johnson	Ten do do	333 30			
Mrs. Lalla F. Murray	Four do do	133 32			
Walter Wickens	Twelve do do	999 96			
George McIntosh	do do	399 96			
J. Edmund Jaques	do do	799 92			
B. G. Connolly	Nine do do	375 03			
P. J. Padden	Three do do	99 99			
W. G. Raymond	Twelve do do	300 00			
Thomas Truss	do Trade instructor	1,100 04			
Geo. G. Lambden	do Carpenter	423 96			
Thomas Harrison	do Engineer	600 00			
John Fitzgerald	do Stoker	500 04			
David Willitts	do Gardener	399 96			
George Grierson	do Baker	399 96			
Sundry persons	Wages of other officers and servants	3,861 42			
	EXPENSES.		17,301 86		
W. N. Hossie	Allowance in lieu of board	150 00			
Willitts, D.	Allowance for rent	84 00			
Anglo-Canadian Music Publishers Association	Sheet music	47 21			
Andres, Maurice	Hay	21 82			
American Printing house for the Blind	Books	173 30			
Agnew, John	Packing cases	2 50			
Ambrose, R. S	Examination music class and travelling expenses	50 00			
Appleton, D. & Co	*American Cyclopedia*, 1891	6 00			
Ashton, Rev. R	Pasturage	5 00			
Brant Ave. Methodist Church	Pupils' pew rent	100 00			

Bell Telephone Company	Rent of apparatus and for messages	42 70			
Butterworth, Henry	Services as barber	2 10			
B. W. & L. E. R. Co	Freight charges	3 56			
Buck, William	Repairs for ranges	21 60			
Batchelor, B	Druggists' sundries	50			
Bradley, Garrettson & Co	Books	15 00			
Brown & Co	Dry goods, etc	26 08			
Boyd, Rev. J. N	Book	1 50			
Baptist Church	Pupils' pew rent	12 00			
Bishop, John & Son	Hardware, paints and oils	218 62			
Bacon, Annie	Labor in laundry	1 00			
Butterworth, Henry	Groceries and provisions	61 13			
Babcock, S	Subscription to Association of Institutes for the Blind	3 00			
Boyce, J. Morton	Admittance of pupils to concert	7 50			
Blackader, L. E	Travelling expenses	15 30			
Best, T. F	Admittance of pupils to concert	7 10			
Burton, Miss Hettie	Services nursing	126 00			
Britton, Susanna	Poultry	2 75			
Bowes, J	Ice and cartage	13 07			
Bowlby, Bros. & Co	Canned fruit and vegetables	17 90			
Congregational Church	Pupils' pew rent	4 00			
Cox, Alfred	Violin strings and spectacles	5 00			
Courier Printing Co	Subscription and advertising	4 50			
Cook, C	Admittance of pupils to concert	7 50			
Creyk, James	Repairs to spectacles and clocks	11 10			
Canada Health Journal	Subscription	4 00			
Collector Customs	Duty charges	44 50			
Canadian Express Co	Charges	24 70			
Central Prison Industries	Blankets	37 95			
Cockshutt Plow Co	Repairs for implements	2 50			
Connolly, B. G	Travelling expenses and admission of pupils to debate	21 21			
Crompton, Appelbe & Co	Dry goods, etc	221 18			
Crimon, J. E	Admittance of pupils to concert	13 60			
Cameron, A. S	Repairs for pump	4 00			
Campbell, D	Straw	3 75			
Chalcraft, B	Iron and tinware	28 70			
Canadian Office and School Furniture Co	Desks and seats	16 00			
Campbell, George	Straw	3 50			
Creelman Bros	Needles for machines	2 31			
Cameron, L. K	Stationery	39			
Dempster, D. & Co	Robes and repairs	41 75			
Duncan, Charles	Furnishings	129 74			
Daniels, A. W	Harness repairs and admittance of pupils to concert	8 35			
Dymond, A. H	Travelling expenses of self and pupils	18 45			
Dick, Matilda	Hay	14 88			
Dominion Express Co	Charges	1 85			
Dymond, A. H	Sundry expenses *re* Convention of Institutes for the Blind	11 58			
Davy, A. F	Travelling expenses	3 00			
	Carried forward	1,928 23	17,501 86	755,970 10	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	1,928 23	17,301 86	755,970 10	1,413,209 63
	INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*				
	EXPENSES.—*Continued.*				
Expositor, Brantford	Printing and binding, advertising and stationery	154 73			
Evans, W. Stanford	Board for pupil during vacation	16 50			
Finkle, Alex. & Co	Gas	900 61			
Foster, George	Groceries	1,042 84			
Fowler, C. B	Groceries and poultry	154 76			
Foster, B. N	Fowl, fish and fruit	281 65			
Fairclough, G. H	Admittance of pupils to concerts	18 60			
Foster, James	Repairs to appliances	33 75			
Fleming, William	Horseshoeing	30 79			
Fitness, William	Bricklaying, plastering, *re* repairs to furnaces	50 00			
G. T. R. Co	Special train to Hamilton and freight charges	35 34			
G. N. W. Telegraph Co	Messages	12 77			
Grant, William	Clothing and bedding	167 92			
Garvin, J. A	Repairs to furniture	31 50			
Gough, E. D. & Co	Clothing	11 30			
Gilbert, Mrs.	Kindergarten supplies	24 25			
Grace Church	Pupils' pew rent	60 00			
Graham, Alex	Plants	1 75			
Gilbert, Thomas	Services as Barber	2 40			
Gillin, C	Travelling expenses	2 30			
Hess, Jacob	Butter, eggs and fruit	1,159 62			
Harris, R. R	Crockery and glassware	20 93			
Hamilton, J. S. & Co	Medical comforts	3 10			
Henderson, D. S.	Hardware	4 00			
Hansfield, Thomas	Wages, ploughing and manure	39 45			
Huff, Robert	Livery	1 50			
Hurdon, John	Crockery	50			
Hossie, W. N	To pay sundries	8 50			
Hunt & Colter	Livery and manure	82 00			
Hay, James B.	Seeds	87 28			
Hartman, Charles H.	Horse-shoeing	6 37			
Hossie, W. N.	Railway fares for guides and indigent pupils	221 47			
Heath, F. C.	Admittance of pupils to concert	8 00			
Hawke, Sarah	Wages cleaning	1 00			

House of Refuge	Hay	14 82			
Haycock, L. H.	Travelling expenses	7 20			
Hull, George	Butter	7 50			
Hillcrest Home	Board of sick pupil	32 85			
Jackson & Forde	Yeast	28 08			
Johnson, Emma	Travelling expenses	12 75			
Jaques, J. Edmund	Travelling expenses and admittance of pupils to concert	21 00			
Juer, A.	Repairs to mattress and laying carpets	8 10			
Knight, Miss J.	Services as Dressmaker	11 05			
Kilmaster, W. G.	Admittance of pupils to concert	10 00			
Kerr, H.	Eggs	75			
Kreass, N. B., jr	Subscription to magazine	14 00			
Kelly, M. J., M.D.	Services re examination of school	30 00			
Knowles & Knott	Hardware, etc	66 51			
Kerr, Mrs. C.	Services as Nurse	16 00			
Lawson & Jones	Stationery	2 17			
Lambden, G. G.	Travelling expenses	50			
Loveys, Elizabeth	do	3 50			
Ladlaw, Jean R.	do	1 45			
Lamb, Fred	Picking potatoes	2 50			
McInish, A. H. & Co	Postage, newspapers and periodicals	247 71			
Marquis, D., M.D.	Professional services	103 75			
Merced, W.	Cordwood	13 81			
Mahoney, Thomas	Services shovelling snow	1 88			
Montgomery & Co	Wrapping paper	3 99			
Morton, J. Y.	Hardware, etc	93 81			
Mortar, Boston	Subscription	2 00			
Main, John & Sons	Coal	18 49			
Misener, Isaac	Straw	3 50			
Miller, J. D.	Pump	7 00			
Moffat, Alex.	Repairing clocks	36 00			
Milne, John & Co.	Furnishings	25 00			
Mason & Risch	Piano wire	8 10			
Murray, Earl F.	Travelling expenses	3 00			
Moore, E.	do	1 85			
Mason Harris Co.	Repair	1 50			
Morse, O. W.	Rabbit snap and lock pad	95			
McLean, Eaton & Lashead	Clothing, dry goods, etc.	45 86			
McKenzie, Rev. D. C.	Admittance of pupils to concert	13 05			
McIntyre, Joseph	Hay	11 16			
McDonald & Montgomery	Coal	3,016 15			
McComas, Wm.	Whitewashing	5 00			
McIntosh, George	Travelling expenses	2 80			
McKeough, R. E., M.D.	Professional services	10 00			
New York Institution for the Blind	Stationery	50 00			
Nelles, Charles M.	Admittance of pupils to concert	18 80			
Nelligan, James	Carrying	5 00			
O'Neale, Thomas	Grindstone	74			
Carried forward		10,653 60	17,301 86	755,970 10	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Carried forward	10,653 60	17,301 86	755,970 10	1,413,209 63
	INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*				
	EXPENSES.—*Continued.*				
Philip, D. Leslie, M.D.	Professional services	4 00			
Patten, L.	Services as Nurse	30 00			
Perkins' Institution and Massachusetts School for the Blind	Books	70 84			
Power, Richard	Services as Barber	25 00			
Parker, R. & Co.	Dyeing	2 25			
Park & Co.	Frames	13 80			
Phillips, William	Services during Convention	3 00			
Pinchin, R.	Dominion *Gazetteer*	5 00			
Patte, J. W.	Renewing hats	1 00			
Rose, Robert	Threshing oats and furnishing labor	10 82			
Revell, George	Whitewashing	16 35			
Ritchie, Kate	Travelling expenses	2 20			
Raymond, W. G.	Piano castors	3 75			
Ritchie, J. A.	Kalsomining	4 50			
Russell, Robert	Plumbing and supplies	108 71			
Ryerson Bros	Poultry, fish and fruit	23 36			
Slater, Lizzie	Travelling expenses	2 70			
Sundry newspapers	Advertising *re* supplies and fuel	65 00			
Sayles, Solomon	Manure	6 00			
Stone & Wellington	Trees	12 50			
Smith, Stephen	Brushes	1 00			
Secord, Thomas C.	Eggs	1 08			
Steniford, C.	Shoes	8 00			
Scott, A. G.	Livery during Convention	5 75			
Shackle, Robert	Services do	2 50			
Schultz Bros	Builders' supplies	96 05			
Simmons, J. H.	Produce and provisions	1,136 79			
Smith, James	Meat	2,214 77			
Smith, James Son & Co.	Furnishings	1 50			
Singer Mfg. Co.	Repairs to machine	2 00			
Sayles, E.	Fish	180 64			
Sumler, W. H.	Hay	53 80			

Sanderson, Robert	Hay and cordwood	82 85			
Suckling, I. & Sons	Sheet music	10 22			
Stapleton, J	Shoes and repairs	186 55			
Sloan, William	Contract filling ice house	100 00			
Standard Publishing Co	Books	2 58			
Selby & Co	Educational appliances	24 26			
Sagez, D. S	Drugs and chemicals	52 40			
Spence, A.	Repairs to vehicles	56 33			
Salmond, J. R	Books and stationery	64 60			
Stuart, David	Hay	70 71			
Sundry persons	Services blowing organ	110 00			
Stratford, John H. Hospital	Care and attendance of pupils	66 50			
Sutherland, J. J	Books and stationery	94 58			
Sayles, H	Potatoes	21 00			
Sadlier, D. J. & Co	Books	3 11			
St. Bazil's R. C. Church	Pupils' pew rent	44 00			
Stewart, J. G., V.S	Professional services	20 00			
Scott & Strachan	Repairs to plaster	4 20			
Tapscott, S	Drugs, chemicals, etc	164 66			
Troy Laundry Machinery Co.	Potash	38 40			
Truss, Thomas	Travelling expenses	4 40			
Thomson, S. M	Clothing	199 93			
Thomas, J. S	Inspection scales	2 75			
Thomas, John	Potatoes	1 75			
Thomas, D	Furnishings	6 50			
Turnbull, Wm	Deepening well	5 00			
Usher Thomas S	Repairs for musical instruments	117 99			
Urquhart, W. T	Hats	5 50			
Union Publishing Co	City directories	4 00			
Vanstone, A. L	Groceries, crockery and glassware	443 77			
Winter & Elliott	Groceries	175 28			
Wallace, J. F	do	457 07			
Williman, J. H	Repairs to furniture	75			
Watts, A. & Co	Soap	6 60			
Workshop Department	Furniture and clothing	60 40			
Williams, Harry	Milk, reaping oats, and repairing electric detector	36 65			
Warboys, A	Hay	11 50			
Water Commissioners	Water for fire protection	283 35			
Waterbury Brass Co.	Educational appliances	5 17			
Warren, S. R. & Son	Tuning and repairing organ	28 00			
Waterous Engine Works Co.	Oil and ironware	8 85			
Wallace, James A	Drugs and chemicals	87 12			
White & Whitelock	Clothing	4 50			
Wilkinson, Wm., M.A	Services re examination schools	30 00			
Wickens, W	Travelling expenses	36 20			
Waddington, R	Teaming	15 25			
Whitney, Charles	Furniture and repairs	64 80			
Wood, D. B	Oats and bran	24 00			
	Carried forward	18,112 29	17,301 86	755,970 10	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	18,112 29	17,301 86	755,970 10	1,413,209 63
	INSTITUTION FOR THE BLIND, BRANTFORD.—*Continued.*				
	EXPENSES.—*Continued.*				
Whittaker Bros	Bread, etc	10 86			
Wattles, John H	Subscriptions to *Sunday School Times*	4 00			
Workman & Watt	Brick	7 59			
Wheler, George	Services stock-taking, checking books, etc	96 40			
Wickham, W. T. & Co	Raisins and canned fish	7 50			
Welding, W. E	Flour pots	2 25			
Warwick & Sons	Printing, etc	19 35			
Wye, R. J	Admittance of pupils to concert	2 40			
Yapp, Chas. W	Meat	19 00			
Zion Presbyterian Church	Pupils' pew rent	40 00			
			18,321 55		
				35,623 41	
	ANDREW MERCER REFORMATORY.				
	SALARIES.				
M. J. O'Reilly	Twelve months' salary as Superintendent	999 99			
Lucy M. Coad	do Deputy Superintendent	600 00			
Matilda Elliott	do School Teacher	549 99			
Mary A. O'Reilly	do Secretary	350 04			
Priscilla Backus	do Chief Attendant	200 01			
Mary Campbell	do Attendant	180 00			
Margaret Sheppard	do do	180 00			
Emily Edwards	do do	180 00			
Mary A. Madden	do do	180 00			
Mary Fitzgerald	do do	168 00			
Jane M. Maloney	do do	168 00			
Margaret Evans	do Relieving Attendant	168 00			
Isabella McIntyre	do Refuge do	168 00			
Kate Kelliher	do do do	168 00			
Rose Harrison	do Night do	200 01			
Margaret Down	do Cook	168 00			
John S. King, M.D	do Physician	800 01			
R. W. Laird	do Bursar	900 00			

James Rankin	do	Engineer	600 00			
James Kelly	do	2nd Engineer	500 01			
John Nolan	do	Night Watchman	399 98			
Patrick Hart	do	do do	399 98			
Robt Wheeler	do	Messenger	399 9[illegible]			
John F. Barron	do	Gardener	399 99			
Sundry persons	Wages of other officers and servants		228 00			
				9,255 98		
	EXPENSES.					
R. W. Laird	Allowance for board and lodging		200 03			
J. F. Barron	Allowance for rent		72 00			
Alexander & Anderson	Dry goods, clothing, etc		373 94			
Anderson, Isaac	Spencer's phenyle		12 88			
Allan, S.	Vinegar		8 00			
Allan, P. C	Periodicals		9 00			
Burkinshaw, F. A	Butchers' meat, poultry, etc		79 25			
Bertram, J. A	Hardware		53 06			
Boyd, Agnes M	Service nursing in contagious disease		18 00			
Burns, P. Co	Coal		21 50			
Burniston, A	Filing saws		30			
Brooks, Robert	Bulbs		6 00			
Bell, Robert	Freight on fertilizer		4 20			
Brown Bros	Blank books		1 60			
Bunker, George	Stencil plate and rubber stamp		85			
Botham & Hall	Drugs and chemicals		19 21			
Ball, W. M	Fruit		3 30			
Bertram & Co	Hardware		7 60			
Brown, W. J	Horseshoeing and blacksmithing		15 75			
Consumers' Gas Co	Gas		486 38			
Central Prison Industries	Boots, yarn, clothing and labor of men		1,220 20			
Christie, Chas. H	Milk		165 72			
Couse, H	Honey		15 00			
Campbell, Alex	Services as carpenter		356 75			
Copping, George H	Wringers and repairs		24 00			
Cochrane, J. M	Services in greenhouse and as Messenger		42 56			
Canada Health Journal	Subscription		2 00			
Common Sense M'f'g Co	Vermin exterminator		11 50			
Copp Clark Co., Ltd	Copy books		3 20			
Coleman, C. W	Repairs to clock		13 10			
Coad, Lucy M	To pay sundries		9 90			
Campbell, D. A	Services as Messenger		20 16			
Cameron, L. K	Stationery		56 74			
Duthie, J. & Sons	Clearing snow from roofs		28 00			
Doyle, M	Fish		104 04			
Dunn, James R	Hay and straw		73 05			
Donald, Richard	Groceries		79 92			
Doran, M. J	Fertilizer		40 00			
	Carried forward		3,658 69	9,255 98	791,593 51	1,413,209 63

PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	3,658 69	9,255 98	791,593 51	1,413,209 63
	ANDREW MERCER REFORMATORY.—*Continued.*				
	EXPENSES.—*Continued.*				
Down, M.	Eggs	1 52			
Dixon, H. C	Postages	34 00			
Davis, John & Son	Earthenware	13 00			
Daley, C	Apples	3 00			
Eckhardt, H. P. & Co	Groceries	896 53			
Evans, George	Hardware, etc	99 98			
Elliott, M	To pay sundries	40 16			
Edgar, John & Sons	Crockery, china and glassware	62 80			
Ewing, Thomas	Milk	137 28			
Evans & So s, Ltd	Lessive phenix	39 20			
Fleischmann & Co	Yeast	93 30			
Flett, Lowndes & Co	Cotton	29 34			
Fotheringham, J	Vegetables and fish	3 72			
Foot, John	Apples	6 00			
Grey, William	Postages	32 00			
Grey, John V	do	10 00			
Goodyear Rubber Store	Rubber goods	15 30			
Gurney, E. & C. Co., Ltd	Iron pipe	6 00			
Gowans, Kent & Co	China, glassware, etc	50 30			
Galloway, Taylor & Co	Castings	6 00			
Globe Ptg. Co	Subscription	5 00			
Green, E. H., M.D	Professional services	5 00			
Hunter, R	Meat	1,309 60			
Hale, M. F. & Co	Cab hire	118 50			
Hathaway, James	Repairs to furniture	1 95			
Hunter, M	Oats, straw, bran, etc	35 46			
Hunter, R	Difference on exchange of cows	7 00			
Harte, Patrick	Street car tickets	24 00			
Hamilton, Wm. B. Son & Co.	Leather laces	8 25			
Haug, W. E	Clock	75			
Howard, H	Furnishing material and services laying brick	13 76			
Hutt, F. W. & Co	Hardware	21 10			
Hyde, F. H	Plumbing supplies	15 50			
Hawke & Emes	Hardware	1 80			

Hickman & Co	Groceries and provisions	12 20			
Hawke, J. & Co	Hardware	12 87			
Inglis, John & Sons	Iron	16 37			
Ireland, Elizabeth	Soap	4 80			
Jeune, A	Apples	2 50			
Knowles, H. A	Drugs and chemicals	95 00			
Keer, Maj.-Genl	Tea and coffee	132 00			
Keith & Fitzsimons	Plumbing supplies	35 55			
Kay, John Son & Co	Carpet sweeper	2 60			
Little, G. J	Drugs and chemicals	21 15			
Laird, R. W	To pay sundries	64 33			
Lugsdin, J. J	Hats and caps	92 90			
Lake Simcoe Ice Co	Ice	129 29			
Lugsdin & Barnett	Stable sundries	8 20			
Lendreville, J	Pigs	4 50			
Little, F. H	Eggs	34 20			
Lyon & Patterson	Stationery, etc	6 00			
Maloney, John	Manure	48 75			
Miller, Hugh & Co	Drugs and chemicals	47 37			
Morse Soap Co	Soap	285 00			
Might's Directory Co	City directory	5 00			
Map and School Supply Co	Mounting map	85			
Mason & Risch	Repairing organ	12 50			
Moore, D. J	Lime	2 20			
Monetary Times	Subscription	2 00			
Mail Printing Co	do	5 00			
Meyers Bros	Repairs for wringers	4 80			
McMaster & Co	Clothing, bedding, etc	606 87			
McGill, William & Co	Coal	3,265 70			
Nelson, H. A. & Sons	Woodenware, soap, etc	195 92			
O'Reilly, M. A	To pay sundries	39 44			
Pepper, William	Teaming manure	75 00			
Patchett, E	Milk	414 30			
Pfeiffer & Hough Bros	Cleaning carpets	9 50			
Plant, George	Flower pots	14 05			
Prisoners' Aid Association	Cab hire *re* religious services	250 00			
Pantechnetheca, The	Glassware	2 00			
Peal, M. J	Cotton, etc	1 80			
Ryan, William	Groceries and provisions	1,898 10			
Rankin, William	Lumber, etc	104 81			
Ryrie Bros	Repairing clock	60			
Rennie, William	Field and garden seeds	8 70			
Rose Publishing Co	Books and stationery	24 26			
Roberts, E. H	Blank keys	80			
Rumsey, W. H	Fruit	1 50			
Ross, John	Services as carpenter	12 50			
Swan Bros	Groceries and provisions	539 13			
Skean's Dairy Co	Eggs	48 56			
Saunders, W. E. & Co	Marking ink	9 00			
	Carried forward	15,416 26	9,255 98	791,593 51	1,413,209 63

13 (P.A.) 1896

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	15,416 26	9,255 98	791,593 51	1,413,209 63
	ANDREW MERCER REFORMATORY.—*Continued.*				
	EXPENSES.—*Continued.*				
Sadlier, D. & J. & Co.	Wax candles	7 90			
Snow, R. B.	Oysters, fruits, groceries, etc	179 87			
Smith, John B. & Sons	Lumber	31 32			
St. Michael's Cathedral	Cab hire, *re* religious services	100 00			
Stockdale, Joseph S.	Repairing window shades	3 00			
Singer Mfg. Co	Repairs for machines	13 67			
Sparrow, Wm. H.	Ironware	32 50			
Steele Bros. Co	Seeds, bulbs, etc	117 96			
Stewart & Wood.	Paints and oils	28 68			
Sundry newspapers	Advertising for fuel and supplies	61 25			
Terry, Edward	Sand, lime, alabastine, etc	6 85			
Toronto Rubber Co.	Rubber goods	9 00			
Turner & Porter.	Interments	17 25			
Todd, William	Disinfectant	6 60			
Temple, P.	Repairing shoes	60			
Toronto Hardware Mfg. Co.	Iron washers	8 62			
Upper Canada Tract Society.	Bibles	7 65			
Van Luven & Co.	Soap	97 42			
Waterworks Department	Water	1,019 40			
Williams, T.	Horseshoeing, blacksmithing, and repairs to vehicles	42 01			
Whillans, Robert	Stones for pillar rests and flags	10 00			
Wheeler, C.	Eggs, milk, and subscriptions to *Globe* and *Mail*	11 99			
Williamson & Co	Books	1 25			
Wheeler, R.	Apples, postages, etc	9 80			
Wheler, E. & Co.	Flour, feed and provisions	75 75			
Wheler, George.	Services stock-taking and checking store books	126 00			
Wheeler & Bain	Hardware	35 19			
Warwick & Sons.	Printing, etc	108 49			
			17,586 28		
				26,842 26	
	Total Public Institutions Maintenance				818,435 77

IMMIGRATION.

AGENCIES IN EUROPE.

Peter Byrne	Salary and allowance as Agent at Liverpool		2,365 00	
G. J. Byrne	Services as clerk		261 00	
J. Jaques	do		49 22	
P. Byrne	To pay for printing and advertising		601 00	
do	do postage and expressage		104 00	
do	do stationery and contingencies		104 15	
do	do rent, fuel, taxes and gas		328 01	
do	Travelling expenses		250 00	
Globe Printing Co	Subscription two years		18 28	
				4,080 66

AGENCIES IN ONTARIO.

J. A. Welch	Services as constable in railway station and sheds			600 00

INCIDENTALS.

G. T. Railway Co	Carriage of immigrants	151 05		
C. P. Railway Co	do	16 72		
B. Cumberland	do	1 75		
Chas. Jordan	Cartage baggage	1 25		
Dominion Transfer Co	Freight charges	3 22		
G. N. W. Telegraph Co	Telegrams	3 12		
Street Railway Co	Car tickets	2 00		
			179 11	
D. Davies	Meals for immigrants	85 20		
C. Harris	do	17 50		
C. Gaunt	do	25 50		
M. A. Kitchen	do	12 50		
M. A. White	do	1 00		
Mrs. Wilson	do	36 75		
E. Sinnott	do	2 50		
D. Spence	To pay indigent immigrants	21 64		
			202 59	
F. Yeigh	Compilation of pamphlet, Rainy River District	35 00		
Buntin, Reid & Co	Paper do do	125 75		
G. T. Railway Co	Freight charges do do	1 66		
Wm. Barber & Bros	Paper for report do	80 03		
H. Wright	Views do do	4 00		
Toronto Engraving Co	Engraving do do	24 60		
R. J. F. Marsh	Construction of immigrant shed do	150 00		
			421 04	
	Carried forward		802 74	4,680 66 2,231,645 40

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		802 74	4,680 66	2,231,645 40
	INCIDENTALS.—*Continued.*				
Warwick & Sons	Printing, binding pamphlet, "Ontario as a Home"	1,947 08			
Copp Clark Co	Lithographing do do	140 00			
			2,087 08		
Conger Coal Co	Fuel		5 20		
C. P. Industries	Clothing for constable		28 00		
Sundry newspapers	Subscription		7 00		
Alex. Robertson	Services		722 50		
Wm. Barber & Bros	Paper for report		1 68		
				3,654 20	
	Total Immigration				8,334 86
	AGRICULTURE.				
	ELECTORAL DIVISION SOCIETIES.				
Treasurer, Electoral Division Society—					
Addington	Legislative grant	800 00			
Algoma, East	do	800 00			
Algoma, West	do	800 00			
Brant, North	do	800 00			
Brant, South	do	800 00			
Bruce, North	do	800 00			
Bruce, South	do	800 00			
Bruce, Centre	do	800 00			
Brockville	do	800 00			
Carleton	do	800 00			
Cardwell	do	800 00			
Cornwall	do	350 00			
Dundas	do	800 00			
Durham, East	do	800 00			

Durham, West	do					800	00	
Dufferin	do					800	00	
Essex, North	do					800	00	
Essex, South	do					800	00	
Elgin, East	do					800	00	
Elgin, West	do					800	00	
Frontenac	do					800	00	
Grey, East	do					800	00	
Grey, North	do					800	00	
Grey, South	do					800	00	
Glengarry	do					800	00	
Grenville, South	do					800	00	
Huron, East	do					800	00	
Huron, West	do					800	00	
Huron, South	do					800	00	
Halton	do					800	00	
Hastings, East	do					800	00	
Hastings, West	do					800	00	
Hastings, North	do					800	00	
Haldimand	do					800	00	
Hamilton	do					350	00	
Kent, East	do					800	00	
Kent, West	do					800	00	
Kingston	do					350	00	
Lanark, North	do					800	00	
Lanark, South	do					800	00	
Lambton, East	do					800	00	
Lambton, West	do					800	00	
Leeds, South	do					800	00	
Leeds and North Grenville	do					800	00	
Lennox	do					800	00	
Lincoln	do					350	00	
London	do					800	00	
Middlesex, North	do					800	00	
Middlesex, East	do					800	00	
Middlesex, West	do					800	00	
Monck	do					800	00	
Muskoka	do					350	00	
Niagara	do					800	00	
Northumberland, East	do					800	00	
Northumberland, West	do					800	00	
Norfolk, North	do					800	00	
Norfolk, South	do					800	00	
Nipissing	do					800	00	
Ontario, North	do					800	00	
Ontario, South	do					800	00	
Oxford, North	do					800	00	
Oxford, South	do					800	00	
Perth, North	do					800	00	
Carried forward						48,150	00	2,239,480 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	48,150 00			2,239,980 26
	ELECTORAL DIVISION SOCIETIES.—*Continued.*				
The Treasurer, Electoral Division Society—					
Perth, South	Legislative grant	800 00			
Peterboro', East	do	800 00			
Peterboro', West	do	800 00			
Parry Sound	do	800 00			
Peel	do	800 00			
Prescott	do	800 00			
Prince Edward	do	800 00			
Renfrew, North	do	800 00			
Renfrew, South	do	800 00			
Russell	do	800 00			
Simcoe, East	do	800 00			
Simcoe, West	do	800 00			
Simcoe, South	do	800 00			
Stormont	do	800 00			
Toronto	do	550 00			
Victoria, North	do	800 00			
Victoria, South	do	800 00			
Waterloo, North	do	800 00			
Waterloo, South	do	800 00			
Welland	do	800 00			
Wellington, West	do	800 00			
Wellington, South	do	800 00			
Wellington, Centre	do	800 00			
Wentworth, North	do	800 00			
Wentworth, South	do	800 00			
York, North	do	800 00			
York, East	do	800 00			
York, West	do	800 00			
			70,300 00		
	OUTLYING DISTRICTS.				
Treasurer—					
Armour	Legislative grant	75 00			
Bonfield	do	50 00			
Campbell and Providence Bay	do	75 00			

Cardiff	do		50 00		
Chippawa Indians	do		50 00		
Chaffey	do		50 00		
Day, Wells, Bright and Day Mills	do		75 00		
Dysart *et al*	do		150 00		
Ferris	do		50 00		
Gravenhurst	do		75 00		
Gladstone, Bright, etc	do		75 00		
Glamorgan	do		50 00		
Himsworth, North	do		50 00		
Himsworth, South	do		50 00		
Johnston, Coffin, etc	do		75 00		
Laird	do		50 00		
Machar	do		75 00		
Minden, Snowdon, etc	do		100 00		
Monmouth	do		75 00		
Muncey Indians	do		50 00		
Nipissing	do		75 00		
Oneida Indians	do		50 00		
Oso	do		50 00		
Rama, Dalton, etc	do		50 00		
Stephenson	do		50 00		
Stisted	do		50 00		
Strong	do		75 00		
Tuscarora Indians	do		100 00		
Plummer	do		50 00		
				1,900 00	
					72,200 00
		GRANTS TO ASSOCIATIONS.			
Agriculture and Arts Association	Legislative grant			5,500 00	
Fruit Growers' Association	do			1,800 00	
Entomological Society	do			1,000 00	
Eastern Dairymen's Associa'n.	do			2,000 00	
Western Dairymen's Associa'n	do			2,000 00	
Dominion Sheep-Breeders' Association	do			300 00	
Swine Breeders' Association	do			300 00	
Ontario Experimental Union	do			400 00	
OntarioCreameries'Association	do			1,500 00	
Eastern Poultry Association	do			400 00	
Western Poultry Association	do			900 00	
Bee-keepers' Association	do			500 00	
Eastern Dairymen's Associa'n.	do	for Dairy Schools, etc		750 00	
Western Dairymen's Association	do	do		750 00	
W. McEvoy	Services and expenses *re* Bee Inspection			616 45	
					18,716 45
		Carried forward			90,916 45 2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			90,916 45	2,239,980 26
	FARMERS' INSTITUTES.				
Addington	Legislative grant	25 00			
Algoma, Centre	do	25 00			
Brant, North	do	25 00			
Brant, South	do	25 00			
Bruce, North	do	25 00			
Bruce, South	do	25 00			
Bruce, Centre	do	25 00			
Brockville	do	25 00			
Carleton	do	25 00			
Cornwall	do	25 00			
Dufferin	do 1891, 1892	50 00			
Durham, West	do	25 00			
Dundas	do	25 00			
Elgin, East	do	25 00			
Elgin, West	do	25 00			
Essex, North	do	25 00			
Essex, South	do	25 00			
Frontenac	do	25 00			
Grey, South	do	25 00			
Grey, Centre	do	25 00			
Glengarry	do	25 00			
Halton	do	25 00			
Huron, East	do	25 00			
Huron, West	do	25 00			
Huron, South	do	25 00			
Hastings, East	do	25 00			
Haldimand	do	25 00			
Kent, East	do	25 00			
Kent, West	do	25 00			
Lanark, North	do	25 00			
Lanark, South	do	25 00			
Lennox	do	25 00			
Leeds, South	do	25 00			
Lambton, East	do	25 00			
Lambton, West	do	25 00			
Lincoln	do	25 00			

Middlesex, North	do		25 00			
Middlesex, East	do		25 00			
Middlesex, West	do		25 00			
Monck	do		25 00			
Muskoka	do		25 00			
Norfolk, North	do	1891, 1892	50 00			
Norfolk, South	do		25 00			
Northumberland, East	do		25 00			
Northumberland, West	do		25 00			
Ontario, North	do		25 00			
Ontario, South	do		25 00			
Oxford, North	do		25 00			
Oxford, South	do		25 00			
Perth, North	do		25 00			
Perth, South	do		25 00			
Peterboro', East	do		25 00			
Peterboro', West	do		25 00			
Prince Edward	do		25 00			
Prescott	do		25 00			
Peel	do		25 00			
Parry Sound	do		25 00			
Renfrew, South	do		25 00			
Russell	do		25 00			
Stormont	do		25 00			
Simcoe, South	do		25 00			
Simcoe, East	do		25 00			
Simcoe, West	do		25 00			
Simcoe, Centre	do		25 00			
Victoria, East	do		25 00			
Victoria, West	do		25 00			
Wellington, East	do		25 00			
Wellington, South	do		25 00			
Wellington, West	do		25 00			
Wellington, Centre	do		25 00			
Wentworth, North	do		25 00			
Wentworth, South	do		25 00			
Welland	do		25 00			
Waterloo, North	do		25 00			
Waterloo, South	do		25 00			
York, North	do		25 00			
York, East	do		25 00			
York, West	do		25 00			
Ontario Provincial Institute	do		1,600 00			
				3,600 00		
J. I. Hobson	Services attending Institutes		54 00			
J. McMillan	do		63 00			
D. McCrae	do		18 00			
E. Jeffs	do		12 00			
Hon. C. Drury	do		36 00			
		Carried forward	183 00	3,600 00	90,916 45	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	183 00	3,600 00	90,916 45	2,239,980 26
	FARMERS' INSTITUTES.—*Continued.*				
W. J. Palmer	Services attending Institutes	90 00			
A. McD. Allan	do	45 00			
A. H. Pettit	do	45 00			
T. S. Scott	do	27 50			
C. M. Simmons	do	22 50			
T. H. Race	do	45 00			
T. Raynor	do	45 00			
W. Cline	do	30 00			
Jos. Yuill	do	47 50			
R. F. Holtermann	do	42 50			
D. E. Smith	do	47 50			
G. C. Caston	do	47 50			
F. B. Linfield	do	90 00			
D. W. Beadle	do	45 00			
W. H. McNish	do	30 00			
A. M. Smith	do	45 00			
W. S. Fraser	do	47 50			
W. W. Hillborn	do	47 50			
F. C. Grenside	do	50 00			
W. Cowan	Services and expenses attending Institute	9 65			
			1,082 65		
James Mills	Travelling expenses and disbursements attending Institutes	214 59			
Thomas Shaw	do do	176 64			
J. H. Panton	do do	143 55			
A. E. Shuttleworth	do do	138 17			
H. H. Dean	do do	356 72			
C. A. Zavitz	do do	215 41			
J. McMillan	do do	118 73			
J. I. Hobson	do do	142 90			
F. C. Grenside	do do	144 50			
Hon. C. Drury	Travelling expenses attending Institutes	11 50			
H. B. Sharman	do	23 85			
J. W. Steinhoff	do	22 55			
W. H. McNish	do	9 60			
C. C. James	do	32 80			
			1,751 51		

J. W. Gunn & Co	Lantern slides, etc	71 65			
W. Marshall	Slides, etc	16 00			
			87 65		
Warwick & Sons	Printing	134 56			
Innes & Davidson	Circulars	3 00			
Bell Telephone Co	Messages	35			
G. N. W. Telegraph Co	Telegrams	8 64			
C. P. R. Telegraph	do	82			
Bank Commerce	Charges on drafts	25			
Postmaster	Postage stamps	17 60			
James Hough	Stationery	4 00			
			169 22		
A. McCallum	Accountable warrant		1,500 00		
				8,191 03	
	INCIDENTALS.				
J. McMillan	Services and expenses *re* Advisory Board	12 50			
J. I. Hobson	do	15 25			
W. Donaldson	do	26 25			
D. A. Dowling	do	33 00			
J. S. Smith	do	14 00			
E. Jeffs	do	14 90			
C. C. James	Travelling expenses do	2 50			
			118 40		
W. Barber & Bros	Paper, report Entomological Society	40 82			
do	do Fruit Growers' Association	218 35			
do	do Agricultural College	939 14			
do	do Agriculture and Arts Association and Dep't of Agriculture	75 85			
do	do Dairymen's and Creameries' Associations	690 51			
do	do Beekeepers' Association	15 38			
do	do Poultry Association	7 71			
do	do Farmers' Institute	253 18			
do	do Sheep-Breeders' and Swine Breeders' Associations	266 50			
do	do Forms for Agricultural Societies	5 52			
			2,512 96		
Warwick & Sons	Printing and binding report, Agriculture and Arts Association and Department of Agriculture	817 30			
do	do Dairymen's Association	480 98			
do	do Poultry Association	7 52			
do	do Beekeepers' Association	9 45			
do	do Fruit Growers' Association	929 97			
do	do Agricultural College	623 14			
do	do Farmers' Institutes	215 10			
do	do Sheep-Breeders' and Swine Breeders' Ass'ns	197 00			
do	do Entomological Society	21 67			
do	Printing bulletins, Agricultural College	1,153 27			
do	do forms for reports of Agricultural Societies	60 38			
do	do patrons of industry	3 80			
do	do lists of shareholders	7 95			
	Carried forward	4,527 53	2,631 36	99,107 48	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	4,527 53	2,631 36	99,107 48	2,239,980 26
	INCIDENTALS.—*Continued.*				
Toronto Lithograph Co	Cuts of college for bulletins	20 00			
Canadian Live Stock Journal.	Electros *re* Agricultural College Report	6 75			
Toronto Engraving Co	Drawings do	50 00			
Williamson & Co	Prize books, Veterinary College	25 00			
J. Lovell & Son	Twenty-five hundred copies Dairying for Profit	312 50			
G. T. Railway Co	Freight charges	66			
W. J. Gray	Services as temporary Clerk	628 00			
E. P. Cliff	do	52 00			
W. McArthur	do	48 00			
S. B. Lynde	do	99 00			
J. Shea	do	18 00			
M. McCarthy	do	10 00			
G. Elliott	do	9 00			
E. Wallace	do	8 00			
A. Locking	Services procuring samples of products, Rainy River District, for Industrial Exhibition	13 00			
			5,827 44		
				8,458 80	
	FORESTRY.				
R. W. Phipps	Twelve months' salary as Clerk		1,500 00		
Warwick & Sons	Printing and binding report		69 34		
W. Barber & Bro	Paper for do		104 08		
do	do copies of Act *re* Preservation of Forest		4 10		
E. A. Dent	Typewriting *re* Report of Forestry Commission		155 08		
L. K. Cameron	Stationery		8 38		
G. M. Rose	Postage stamps		40 00		
Rose Cartage Co.	Cartage		25	1,881 23	
	TREE PLANTING.				
Treasurer—					
Township Brantford	One-half cost of tree planting in municipality		11 87		
do Burford	do		53 12		
do Cramahe	do		13 00		
do Chinguacousy.	do		30 30		

do Cayuga, North	do			76 50	
do Dereham	do			25 87	
do Grantham ...	do			8 75	
do Gainsboro'....	do			19 62	
do Oxford	do			21 75	
do Osprey	do			40 87	
do Pickering	do			121 12	
do Pilkington ...	do			45 00	
do Seneca	do			53 87	
do Warwick	do			21 62	
do Zorra, East ..	do			54 20	
Treasurer—					
Town, Lindsay.....	do			40 00	
do Strathroy	do			9 12	
do Thorold	do			113 00	
Village, Weston.....	do			14 12	
					773 70
	BUREAU OF STATISTICS.				
Warwick & Sons	Printing and binding		1,547 15		
W. Barber & Bros.....	Paper.....		394 23		
L. K. Cameron....	Envelopes		434 48		
G. M. Rose.....	Postage stamps		10 00		
A. McKim & Co	Newspaper directory		2 00		
Williamson & Co	Dictionary of statistics.....		12 50		
Might Directory Co..... ..	Directory		5 00		
				2,405 36	
Thomas D. Bigelow.....	Services as extra Clerk, compiling returns.....		79 00		
E. J. Barton	do	.....	15 00		
G. W. Johnston.....	do	.....	46 00		
J. T. Boyle.....	do	.....	27 00		
R. W. Ross.....	do	.....	14 00		
V. J. Hughes.....	do	.....	94 00		
W. E. James.....	do	.....	50 00		
F. C. Brown	do	.....	22 00		
C. Robertson	do	.....	37 00		
J. C. McLennan	do	.....	240 00		
C. P. Blair.....	do	.....	48 00		
D. C. Ross.....	do	.....	50 00		
K. W. McKenzie.....	do	.....	108 00		
C. Nivens	do	.....	60 00		
W. R. P. Parker	do	.....	60 00		
J. W. Odell	do	.....	48 00		
W. Gormley	do	....	18 00		
G. A. Roberts	do	.....	42 00		
Joseph Hodgson.....	do	.....	58 00		
E. P. Cliff	do	.....	74 00		
	Carried forward	.....	1,290 00	2,405 36	110,221 21	2,239,980 26

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	1,290 00	2,405 36	110,221 21	2,239,980 26
	BUREAU OF STATISTICS.—*Continued.*				
W. McArthur	Services as extra Clerk compiling returns	73 00			
W. A. Stewart	Meteorological services	50 00			
Canadian Express Co.	Charges	45			
Toronto Railway and Steamboat Guide	Subscription	1 30			
Sundry newspapers	Subscriptions	24 00			
			1,438 75		
				3,844 11	
	AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM, GUELPH.				
	SALARIES.				
James Mills	Twelve months' salary as President	2,000 00			
Thomas Shaw	do Professor of Agriculture and Farm Superintend't	2,000 00			
A. E. Shuttleworth	do do Chemistry	1,500 00			
J. H. Panton	do do Geology and Natural History	1,800 00			
H. H. Dean	do do Dairy Husbandry	1,300 00			
F. C. Grenside	do do Veterinary Science	1,000 00			
E. L. Hunt	Ten do Mathematical and Assistant Resident Master	833 30			
J. McCrea	Two do do do	166 70			
H. B. Sharman	Twelve do Assistant in Department of Chemistry	850 00			
W. Clarke	do Instructor in drill and gymnastics	200 00			
A. McCallum	do Bursar	950 00			
G. A. Putnam	do Shorthand Writer and Tutor	500 00			
E. McGuire, M.D	do Physician	300 00			
Sara Craig	do Matron	400 00			
J. A. Angell	do Engineer	800 00			
W. Squirrell	Four do Engineer's Assistant	160 00			
R. Smith	Two do do	50 00			
F. Watson	Five do Stoker	120 00			
F. Winters	Three do do	74 00			
J. Hohenadel	Twelve do Janitor and Messenger	288 00			
J. Squirrell	Nine do Night Watchman	225 00			
			15,517 00		

	Expenses.				
J. & R. Millar	Meat	2,607 79			
D. Nasmith	Meat, etc	176 46			
Happel & Querin	do	112 26			
J. McHardy	do	159 63			
H. Walker & Son	Fish, fruit, etc	80 86			
Lillie & Hadden	do	30 06			
Geo. Williams	do	202 31			
H. Norrish	do	16 50			
W. Buckle	do	36 98			
M. Rosehart	do	80			
J. Penelton	do	1 50			
J. Griffith	do	1 60			
M. A. Rowe	Poultry	40 28			
James Ryan	do	2 25			
W. Buckle	do	17 41			
A. McCallum	To purchase poultry	2 60			
			3,489 29		
W. Buckle	Bread, biscuit, etc	179 97			
Kenny & Co	do	556 28			
R. Mitchell	Groceries, etc	3,953 96			
E. D. Tillson	do	30 80			
James Hemer	do	1 00			
J. McElderry	do	32 06			
G. Williams	do	163 89			
Grange Supply Co	do	2 64			
W. O'Connor & Co	do	1 80			
D. Derbyshire	Syrup	12 00			
H. Norrish	Honey	15 20			
W. L. Haight	do	8 00			
R. G. Clugston	do	33 20			
A. Pringle	do	20 00			
Experimental Dairy	Butter, etc	35 51			
Lillie & Hadden	do	16 36			
Mrs. Quirk	Butter, eggs, etc	264 67			
W. J. Schaird	Milk	15 00			
M. A. Rowe	Apples	1 80			
A. Moody	do	8 75			
R. R. Moody	do	35 00			
Guelph Soap Co	Soap	316 25			
Fielding & McLaren	do	70			
H. Macdonald	Sheeting	1 37			
W. Sunley	Repairing machinery	1 00			
A. McKinnon, M.D	Attendance on servant injured in laundry	28 25			
Pay lists	Wages of laundresses, cooks, and other servants	1,782 59			
			7,518 05		
T. J. Day	Stationery, postage, stamps, etc	86 34			
	Brought forward	86 34	26,524 34	114,065 32	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	86 34	26,524 34	114,065 32	2,239,980 26
	AGRICULTURAL COLLEGE AND EXPERIMEETAL FARM, GUELPH.—*Continued.*				
	EXPENSES.—*Continued.*				
John Smith	Stationery, etc	32 73			
Geo. Bengough	do	10 61			
C. L. Nelles	do	18 77			
L. K. Cameron	do	36 20			
Innes & Davidson	do	126 70			
Warwick & Sons	Embossing	14 00			
F. Nunan	Binding	15 20			
James Hough	Printing postal cards	5 00			
H. Gummer	Printing	16 00			
Postmaster	Postage stamps, etc	201 50			
The Freeholder	Electro, etc	4 95			
J. E. Crealey	Photos of College	1 50			
J. Bruce	Photo and frame	14 50			
J. M. Bond & Co	Leather belt	2 34			
			586 34		
W. G. Smith & Co	Chemicals, etc	180 04			
A. Stewart	do	5 00			
E. Greiner	do	24 25			
Eimer & Amend	do	189 45			
A. B. Petrie	do	2 50			
E. W. McGuire, M.D	Medical and surgical appliances	8 75			
H. G. Cockburn	Fuel, laboratory	7 20			
			417 19		
Carswell & Co.	Books	4 08			
W. Briggs	do	92 62			
Williamson Book Co	do	33 70			
J. H. Heacock	do	4 00			
T. J. Day	do	108 51			
Casino Art Co	do	2 09			
Presbyterian News Co	do	16 80			
E. M. Jones	do	75			

H. T. Weston	do	24 00			
R. C. Dunbar	do	3 00			
J. A. Campbell	do	45			
N. Ackert	do	1 20			
Evans, Bros	do	58			
W. R. Irwin & Co	Directories	4 00			
			295 78		
B. Pearsall	Medals	105 75			
G. D. Pringle	Engraving medals	12 81			
Rolph, Smith & Co	Diplomas	8 00			
Rowsell and Hutchison	Examination papers	66			
T. C. L. Armstrong	Services *re* examinations	24 00			
J. McEvoy	do	12 00			
J. Burwash	Travelling expenses *re* examinations	16 50			
W. F. Clarke	Services lecturing on book-keeping	160 00			
			339 72		
G. N. W. Telegraph Co	Telegrams	14 38			
C. P. R. Telegraph	do	6 94			
Bell Telephone Co	Rent of instruments and messages	54 20			
W. T. Ward	Cab hire	2 00			
E. Morris	do	6 75			
J. Emery	do	3 50			
J. C. Hadden	do	10 00			
Collector of Customs	Duty charges	38 75			
G. T. Railway Co	Freight charges	9 98			
C. P. Railway Co	do	4 01			
Canadian Express Co	Charges	25 90			
Dominion Express Co	do	2 25			
			178 66		
W. Sallows	Blacksmithing	6 50			
R. Stewart	Lumber, etc	40 67			
T. P. Carter	Cutting ice	12 50			
D. Sharpe	Packing ice	6 00			
			65 67		
James Mills	Travelling expenses	66 10			
A. McCallum	do	3 50			
W. Clarke	do	8 00			
S. Craig	do	2 60			
E. L. Hunt	do	5 10			
J. H. Panton	do	2 75			
			88 05		
J. Craig, V.S	Attendance on horse	3 00			
S. Curson	Services addressing circulars	2 20			
F. W. Winter	Services in engine-room	27 16			
J. Squirrell	Cleaning closets	27 88			
J. McNally	Stabling	8 80			
C. Schumick	do	1 00			
W. J. Parker	Collection of insects	101 70			
	Carried forward	171 74	28,495 75	114,065 32	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	171 74	28,495 75	114,065 32	2,239,980 26
	AGRICULTURAL COLLEGE, GUELPH.—*Continued.*				
	EXPENSES.—*Continued.*				
A. McCallum	Sundry payments	1 65			
C. W. Kelly	Rent of piano	30 00			
Sundry newspapers	Subscriptions and advertisements	467 75			
			671 14		
	Less receipts:—		29,166 89		
	Entrance and tuition fees	1,818 66			
	Board	4,847 24			
	Sundries	295 29			
			6,961 19		
				22,205 70	
	EXPERIMENTAL FARM.				
	FARM PROPER.				
R. Stewart	Lumber	324 16			
Petry, Kerr & Co	do	207 92			
Ontario Wire Fencing Co	Fencing	355 20			
W. Reid	Cedar posts	131 70			
D. Kennedy & Son	Brick and lime	5 00			
Pringle & Clunis	Hardware, etc	3 09			
J. M. Bond & Co	Hardware	37 87			
G. B. Morris & Co	do	315 89			
A. M. McBean	do	29 00			
G. Howard	do	41 50			
Christie, Henderson & Co	Curb stone	46 95			
A. Bruce & Son	Carpentering	55 00			
R. Mahoney	do	16 59			
J. R. Lamb	Paving yard	212 57			
J. S. Moffatt	Painting	237 00			
T. Hutchinson	Plastering	23 12			

Walker & Mahoney	Gas fitting	22 15			
W. Sunley	Iron pipe	2 50			
M. J. Doran	Tile	6 00			
F. Shafer	Tile and draining	136 58			
H. Prange	Draining	223 00			
D. Sharpe	do etc	81 87			
J. Lafferty	do	5 62			
W. Stratton & Son	Addition to silo	205 00			
do	Building wagon shed	135 00			
Pay lists	Salary of Foreman	850 00			
do	Farm laborers	4,002 12			
J. & R. H. Crow	Jersey bull	75 00			
James Healey	Ayrshire cow	70 00			
A. White	Cows	175 00			
W. Hamilton	do	81 00			
D. King	Grade steers	194 18			
J. Lindsay	Calves	12 50			
W. Cowan	Boar	20 00			
J. E. Brethour	do	35 00			
J. W. Harding	Horse	115 00			
J. S. Smith	Expenses procuring strayed heifer	5 00			
Sundry persons	Lambs	1,419 10			
J. E. Story	Expenses purchasing lambs	36 90			
C. Salkett	do *re* lambs	13 26			
C. P. Railway Co	Freight charges *re* lambs	33 80			
A. McCallum	Travelling expenses *re* lambs	3 50			
J. E. Story	Expenses and disbursements shipping lambs to Montreal	111 94			
Canada Live Stock Journal	Printing and engraving cuts of sheep	120 00			
W. G. Smith & Co	Medicines	6 85			
Jackson and Hallett	do	15 45			
A. Stewart	do	7 61			
F. C. Grenside	do	12 25			
Watson Bros	do	1 40			
M. Lovering	Registering stock	11 20			
H. J. Templar	do	3 00			
W. A. Shafer	do	5 10			
J. D. Gordon	do	10 10			
F. W. Wicks	do	4 10			
L. G. Muir	do	4 00			
D. C. Smith	do	7 75			
H. Wade	do	46 00			
American Jersey Cattle Club	do	2 05			
H. Muir	do	18 20			
C. R. Thomas	do	10 00			
H. Wade	Membership fees to Association	10 00			
James Ryan	Oats	208 02			
W. Carter	Chopped oats, etc	726 60			
R. Mitchell	do	3 85			
Jas. A. Livingstone	Oil cake	14 60			
	Carried forward	11,361 71		136,271 02	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	11,361 71	....	136,271 02	2,239,980 26
	EXPERIMENTAL FARM.—*Continued.*				
	FARM PROPER.—*Continued.*				
J. Ryan	Oats and hay	2,076 18			
James Goldie	Bran, etc	881 85			
W. Scott	Hay	63 10			
R. Banker	do	16 50			
R. Moody	Straw	19 00			
W. Hutchinson	do	20 00			
J. Short	do	40 00			
J. Keough	do	13 50			
J. Laidlaw	do	20 00			
R. Bruce	Purchase of live stock in England	2,685 83			
F. C. Grenside	Expenses visiting stock in quarantine	41 00			
W. Tofield	Feed for cattle in quarantine	473 22			
J. Northgreaves	Attendance on cattle in quarantine	89 10			
Mrs. A. Watson	Board of man in charge of cattle in quarantine	16 00			
G. T. Railway Co	Freight charges on cattle to Quebec	62 00			
Alex. Norrie	Expenses *re* cattle from Glasgow	23 57			
A. Johnstone	Telegrams *re* imported stock	2 00			
T. Ballantyne	Expenses and disbursements *re* imported stock	73 09			
F. Hyde	Hay and bran do	57 92			
do	To pay attendance of man, etc. do	28 75			
do	Expenses do do	82 93			
F. A. Campbell, V.S	Services do do	3 00			
D. G. Rudd	Furnishings	1 20			
R. Piggott	do	6 58			
T. J. Day	do	7 50			
Watson Manfg. Co	do	6 40			
G. Webber	do	17 95			
W. Sunley	do	5 55			
J. M. Bothwell	do	1 50			
R. Mitchell	do	3 38			
A. Barker	do	1 25			
W. Buckle	do	5 00			
G. Williams	do	10 00			
Burr Bros	Furniture	9 00			

Stubbs & Roger	do	6 00			
Clark & Thomson	Carpets	19 45			
W. Whitelaw	Service of animals	8 00			
D. & O. Sorby	do	10 00			
F. W. Stone	do	12 85			
Sundry newspapers	Advertising re stock sale	118 19			
F. McCallum	Services do	50			
J. D. Hefferman	Fees as auctioneer, stock sale	25 00			
A. Wianck	Seed grain	9 00			
F. Armstrong	do	28 50			
R. Dawson	do	4 00			
J. I. Hobson	do	38 00			
G. Dudgeon	Seeds	25 76			
T. Steele	do	22 75			
W. Rennie	do	59 75			
G. T. Thorpe	do	18 40			
Tolton Bros	Implements and repairs	86 50			
Sawyer-Massey Co	do	3 75			
J. Spencer	do	25 00			
W. Wilkinson	do	50 00			
Frost & Wood	do	108 26			
Massey-Harris Co	Binding twine	38 17			
J. R. Trumans	Machine oil	6 75			
J. Alison	Weigh scales	55 00			
Copp Bros. & Co	Steam heater for piggery	26 00			
D. Maxwell	Repairing implements	2 75			
Gowdy Mnfg. Co	do	1 85			
Mowat Mnfg. Co	do	5 00			
S. Vessott	do	3 00			
J. L. Dixon	do	14 20			
J. McConnell	do	2 40			
C. Thain	do	28 50			
Smalley Mnfg. Co	do	11 76			
R. Piggott	do	50			
Eagle Sulkey Harrow Co	do	5 88			
J. F. Davidson	do	35 15			
J. Hooper	do	1 50			
J. McConnell	do	22 09			
A. Robertson & Son	Repairing machinery	9 75			
Waterloo Mnfg. Co	do	13 74			
Keith & Fitzsimons	do	22 40			
Massey-Harris Co	do	13 80			
Tolton Bros	do	18 15			
Walker & Maloney	do	85			
Feik & Co	Repairing tank	2 40			
P. Grant & Son	do pump	3 00			
C. Thain	do vehicles	44 35			
S. & G. Penfold	do do	17 75			
G. Beattie	Harness and repairs	73 20			
	Carried forward	19,385 11		136,271 02	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	19,385 11		136,271 02	2,239,980 26
	EXPERIMENTAL FARM.—*Continued.*				
	FARM PROPER.—*Continued.*				
W. Sallows	Blacksmithing	82 15			
J. Bearnett	Travelling expenses	2 75			
Thos. Shaw	do	17 25			
J. E. Story	do	14 10			
A. Smith, V.S	do	13 10			
T. J. Day	Stationery, etc	62 64			
G. Bengough	do	25 25			
C. L. Nelles	do	34 75			
Postmaster	Postage stamps	99 00			
Innes & Davidson	Printing and advertising	70 20			
F. Nunan	Binding	7 80			
Sundry newspapers	Advertising	26 30			
R. Fields	Cab hire	2 00			
H. Wright	Cartage	50			
C. P. Railway Co	Freight charges	13 45			
G. T. Railway Co	do	94 78			
Express Co	Charges	17 25			
Collector Customs	Duty charges	7 35			
Bell Telephone Co	Message	25			
G. N. W. Telegraph Co	Telegrams	15 81			
C. P. R. Telegraph	do	6 66			
R. Foster	Allowance for sheep poisoned by Paris green	18 00			
W. Hutchinson	Hire of horse	10 00			
R. Moody	do	10 00			
G. Stewart	Horse for subject	5 00			
Guelph Gas Co	Gas	49 68			
R. Mitchell	Coal oil	7 20			
W. Reid	Fuel	12 00			
H. Cockburn	do	18 00			
D. Kennedy & Son	do	218 59			
Field & Wissler	Legal services	5 00			
A. McCallum	Sundry payments	4 65			
			20,356 57		

	Experiments.				
C. A. Zavitz	Twelve months' alary as Assistant Director	1,200 00			
Pay lists	Wages of Instructor and laborers	2,597 73			
J. A. Simmers	Seeds	7 77			
D. Landreth & Sons	do	15 47			
Geo. Dudgeon	do	21 29			
Steele Bros. & Co	do	11 93			
Sutton Bros.	do	18 23			
W. Rennie	do	36 50			
J. A. Saltzer Seed Co	do	9 50			
Northrop, Branslaugh Co	do	9 95			
Nebraska Seed Co	do	5 45			
S. Wilson	do	13 25			
J. J. H. Gregory & Son	do	6 04			
J. A. Bruce Co	do	4 85			
J. S. Pearce & Co	do	12 71			
R. Evans	do	3 85			
J. M. Thorburn & Co	do	9 03			
J. G. Hartel	do	2 05			
W. P. Jerrard	do	3 13			
L. L. May & Co	do	5 85			
James Vick	do	2 05			
Johnston & Stokes	do	1 45			
Oakshot & Millard	do	18 42			
Jarman & Co	do	4 87			
W. W. Bourard & Co	do	1 75			
J. Hewer	do	1 60			
R. Dawson	do	4 00			
W. H. Stewart	do	35			
Nichol's Chemical Works	Fertilizer	5 76			
Standard Fertilizer Co	do	35 50			
W. A. Freeman	do	11 05			
J. Monkhouse	Manure	3 60			
H. Brabson	do	1 80			
T. P. Carter	do	2 20			
T. J. Healey	do	4 00			
R. Hadden	do	4 50			
M. Dingman	do	6 00			
H. G. Cockburn	do	3 75			
F. Dorsch	do	75			
W. H. Barber	do	1 80			
J. H. Strong	do	7 20			
P. Hartnett	do	1 80			
J. Auld	Straw	6 35			
P. DeCarteret	Braid *re* exhibits	4 40			
Innes & Davidson	Printing do	35 50			
Express Co	Charges do	54 40			
C. A. Zavitz	Expenses and disbursements *re* exhibits	93 42			
	Carried forward	4,312 85	20,356 57	136,271 02	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	4,312 85	20,356 57	136,271 02	2,239,980 26
	EXPERIMENTAL FARM.—*Continued.*				
	EXPERIMENTS.—*Continued.*				
W. Gay	Carpentering, etc., *re* exhibits	15 00			
F. X. Cousineau & Co	Sateen *re* exhibits	3 75			
T. Balie	Velvet do	6 45			
Jas. Cowan & Co	Hatchet, etc., do	1 75			
G. Wood & Co	Velvet, etc., do	6 50			
R. J. Young & Co	Sateen, do	6 25			
E. R. Bollert & Co	Cotton, do	9 40			
J. S. Pearce & Co	Implements	90 00			
Gowdy Mfg. Co.	do	40 00			
J. Abell	Repairing machinery	50			
do	do implements	3 00			
Tolton Bros	do do	70			
J. McConnell	do do	3 84			
do	do vehicles	19 75			
C. Thain	do do	26 00			
G. Beattie	Harness and repairs	25 95			
T. J. Day	Stationery and postage stamps	58 12			
John Smith	do	19 20			
C. L. Nelles	do	4 65			
F. Nunan	Paper boxes	16 90			
Innes & Davidson	Printing, paper, etc.	78 20			
A. Strachan	Shears	1 50			
G. B. Morris & Co	Hardware	92 82			
R. Stewart	Lumber	74 86			
W. Sallows	Blacksmithing	35 17			
R. Mitchell	Brooms, brushes, etc	3 05			
J. Hough	Furnishings	60			
G. Williams	do	29 00			
Stubbs & Roger	Desk	15 00			
W. A. Lyon & Co	Camera and supplies	60 81			
C. A. Zavitz	Travelling expenses	6 75			
V. R. Adams	Team of horses	255 00			
Geo. Lindsay	Calves	12 50			
J. Hurley	do	10 50			

G. T. Thorpe	Meal	80			
Express Co	Charges	101 98			
G. T. Railway Co	Freight charges	27 61			
Collector of Customs	Duties	3 96			
M. Westley	Photos of stock	7 00			
W. Notman	do	28 00			
W. Burgess & Son	do	6 00			
C. A. Zavitz	Travelling expenses	12 80			
			5,534 47		
	EXPERIMENTAL DAIRY.				
Pay lists	Wages of assistant and laborers	1,088 71			
G. Pepper	Guernsey cows	285 20			
G. Barber	Pigs	40 00			
A. Moody	Services and expenses buying cows	15 00			
J. McCormick	Travelling expenses, *re* purchasing cows	26 00			
D. E. Smith	Registration stock	6 00			
W. Carter	Oat chop and peas	176 38			
J. Goldie	Bran, etc.	364 15			
E. J. Presant	Shorts	17 10			
A. Boyd	Cotton seed meal	28 00			
J. Hewer	Barley	15 00			
J. Howse	Straw	5 00			
J. W. Atkinson	do	5 00			
W. Scroggie	do	5 00			
A. Boyd	Oil cake, etc	28 00			
G. B. Morris & Co	Hardware, etc	30 09			
J. M. Bond & Co	do	56 63			
Pringle & Clunis	do	1 50			
G. Beattie	Harness and repairs	11 00			
Matthews, Reid & Co	Repairing vehicles	17 60			
A. Robertson & Co	Repairing machinery	7 45			
J. Morrison	do	3 14			
Tolton Bros.	Repairs to implements	27 18			
Kleopfer & Co.	Fuel	174 79			
R. Stewart	Lumber, etc	4 22			
Burr Bros.	do	5 60			
W. Bishop	Sand	2 45			
T. Matthews	Stone	5 00			
D. Kennedy & Son	Cement, pipe, etc	15 80			
W. Sallows	Blacksmithing	13 90			
Walker & Mahoney	Plumbing	1 35			
Feek & Co	do	1 80			
J. Mahoney	Plastering	1 50			
J. H. White	Whitewashing	60			
D. Kennedy	Plaster and lime	4 75			
J. Morrison	Enamelled sinks for laboratory	7 32			
W. G. Smith & Co	Chemicals, etc.	14 36			
	Carried forward	2,512 57	25,891 04	136,271 02	2,239,980 26

AGRICULTURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	2,542 57	25,891 04	136,271 02	2,239,980 26
	EXPERIMENTAL FARM.—*Continued.*				
	EXPERIMENTAL DAIRY.—*Continued.*				
H. P. Eckardt & Co.	Chemicals, etc.	1 80			
H. G. Cockburn	Fuel	42 61			
Innes & Davidson	Printing circulars	20 00			
James Hough	Printing and stationery	41 75			
James Davidson	do	60 35			
Sundry newspapers	Advertising	6 60			
F. Nunan	Paper boxes	4 50			
T. J. Day	Stationery, etc.	15 56			
Postmaster	Postage stamps	30 00			
A. B. Petrie	do	40			
Collector of Customs	Duty charges	48 50			
Express Co	Charges	12 55			
C. P. Railway Co	Freight charges	17 63			
G. T. Railway Co.	do	20 42			
G. N. W. Telegraph Co	Telegrams	4 86			
C. P. R. Telegraph	do	2 45			
H. H. Dean	Travelling expenses	22 10			
J. McIntosh	do	3 00			
T. C. Rogers	do	2 95			
R. Mitchell	Salt, etc	9 24			
D. E. Rudd	Pails, cans, etc.	22 30			
G. E. Howard	Tinware	4 35			
D. H. Roe & Co.	Babcock test	12 50			
T. Wilson	Machine oil	3 60			
S. Rogers & Co	do	8 50			
M. Moir & Son	Butter mould	12 38			
W. Cain & Sons Mfg Co	Butter tubs	38 00			
J. S. Pearce & Co	Cream separator	325 00			
Vermont Farm Machinery Co.	Cream tester	12 83			
J. S. Pearce & Co.	Appliances, etc.	600 66			
Eimer & Amend	do	2 56			
Polson Iron Works	Grate bars	16 08			
J. Large	Zinc	18 50			
F. B. Skinner	Repairing furniture	2 75			

Pringle & Clunis	Furnishings	1 25	
G. Dudgeon	do	1 88	
Vermont Farm Machinery Co.	do	6 50	
E. R. Bollert	do	2 92	
J. D. Williamson & Co.	do	15 50	
R. H. Bryden & Co	do	3 90	
W. Davies & Co	do	25 90	
J. Anderson	do	1 40	
R. Mitchell	do	15	
Clark & Thompson	do	1 67	
T. Wilson	do	90	
C. L. Nelles	do	3 43	
Clark & Thompson	do	80	
T. J. Day	do	12 89	
W. Smiley	do	2 40	
W. A. Clark	do	1 50	
T. P. Carter	Cutting ice	10 08	
D. Sharpe	Packing ice	3 00	
D. E. Rudd	Valuing creamery plant	3 00	
F. Wilson	Furnishings *re* travelling dairy	12 50	
J. S. Pearce & Co	do do	14 50	
W. Davies & Co	do do	6 40	
McLaughlin Carriage Co.	Wagons do	290 00	
James Fyfe	Scale do	8 50	
J. D. Paxton	Team horses do	200 00	
J. D. McInnes	do do	219 00	
do	Expenses sending team to Gananoque	31 50	
A. Rouleau	Horses, etc., travelling dairy	190 00	
G. Beattie	Harness, etc., do	103 00	
D. Pike	Tarpaulins do	15 50	
G. B. Morris & Co	Hardware, etc. do	21 13	
P. H. McIntosh	Services Instructor do	625 00	
Geo. McIntosh	Services Assistant Instructor, travelling dairy	100 00	
W. J. Palmer	do do	749 93	
F. B. Linfield	do do	749 93	
W. J. Palmer	Expenses and disbursement do	760 25	
F. B. Linfield	do do	700 00	
F. C. Harrison	do do	150 00	
James Hume	do do	28 00	
A. Hagar	do do	730 00	
P. H. McIntosh	Travelling expenses do	37 35	
H. H. Dean	do do	60 85	
G. N. W. Telegraph Co	Telegrams do	2 48	
James Hough	Printing and stationery do	3 50	
A. McCallum	Accountable warrant do	1,200 00	
Sundry newspapers	Advertising do	99 43	
			11,197 67
	Carried forward	37,088 71	136,271 07

AGRICULTURE.—*Concluded.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		88 71	136,271 02	2,239,980 26
	EXPERIMENTAL FARM.—*Continued.*				
	GARDEN, LAWN, ETC.				
J. A. Forsyth	Salary as Gardener	700 00			
Pay lists	Wages, Assistant Gardener, Teamsters and Laborers	2,750 47			
Sundry persons	Picking fruit	23 02			
J. H. Strome	Manure	1 40			
L. Borthwick	do	54 00			
J. Doran	do	2 25			
W. A. Freeman	Fertilizer	12 00			
A. Bernstill	Flower pots	78 40			
J. Gilchrist	do	25 65			
G. Webber	Flower tubs	6 05			
W. Buckle	Barrels	50			
G. Williams	do	6 13			
W. Bishop	Gravel	14 75			
Keith & Fitzsimons	Furnishings	1 52			
Mrs. Johnston	Plants	5 80			
J. Cottrell	do	30 00			
J. A. Simmers	do	27 04			
Pitcher & Manda	do	50 00			
Central tobacco store	Tobacco stems, etc	3 25			
J. A. Simmers	Seeds	8 11			
W. Rennie	do	10 00			
J. A. Bruce & Co	do	27 25			
G. Dudgeon	do	8 08			
R. Stewart	Lumber, etc	26 80			
M. J. Doran	Tile	10 00			
Kennedy & Co	Lime	50			
Klopfer & Co	Fuel	16 50			
D. Kennedy & Sons	do	531 91			
Auld & Woodyat	Lawn mower	15 80			
G. B. Morris & Co	Hardware, paints, oils, etc	96 52			
J. M. Bond & Co	do	2 41			
Pringle & Clunis	do	3 25			
C. Thain	Repairing implements	43 00			
A. R. Woodyatt & Co	do	5 90			

G. Beattie	Harness and repairs	10 30			
J. Damp	Repairs to greenhouse	9 93			
T. J. Day	Stationery, etc	8 36			
Burr Bros	Furniture	25 00			
W. Sallows	Blacksmithing	36 67			
W. Sunley	Fumigating stove	2 50			
J. E. McElderry	Furnishings	4 60			
Express Co.	Charges	16 45			
G. T. Railway Co	Freight charges	10 90			
James Forsyth	Travelling expenses	20 35			
J. A. Angell	do	9 22			
			4,725 54		
	MECHANICAL DEPARTMENT.				
James McIntosh	Salary as Foreman	700 00			
Pay lists	Wages as Carpenter	430 00			
R. Stewart	Lumber	4 55			
G. B. Morris & Co	Hardware	78 80			
J. M. Bond & Co	do	28 60			
W. Sallows	Blacksmithing	3 11			
D. Kennedy & Son	Fuel	25 80			
			1,270 86		
			43,085 11		
	Less receipts:—				
	Farm produce	720 09			
	Garden do	81 10			
	Stock	9,254 12			
	Service of animals	157 00			
	Experimental dairy	1,101 03			
	Miscellaneous	32 65			
	Insurance on cattle, lost during shipment	725 00			
			12,073 99		
				31,011 12	
	Total Agriculture				167,282 14
	Carried forward				2,407,262 40

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward				2,407,262 40
	HOSPITALS AND CHARITIES.				
The Treasurer—					
General Hospital, Toronto	Legislative grant			24,525 43	
Homœopathic Hospital, Toronto	do			2,860 42	
Hospital for Sick Children, Toronto	do			4,515 60	
City Hospital, Hamilton	do			6,182 20	
St. Joseph's Hospital, Hamilton	do			1,488 60	
General Hospital, Kingston	do			5,115 09	
Hotel Dieu Hospital, Kingston	do			3,569 54	
General Protestant Hospital, Ottawa	do			4,263 19	
Roman Catholic Hospital, Ottawa	do			5,312 30	
House of Mercy, Lying in Hospital, Ottawa	do			2,237 88	
General Hospital, London	do			5,318 31	
St. Joseph's Hospital, London	do			1,342 66	
General and Marine Hospital, St. Catharines	do			1,498 54	
Galt Hospital, Galt	do			496 80	
General Hospital, Guelph	do			3,497 88	
St. Joseph's Hospital, Guelph	do			2,531 26	
General Hospital, Pembroke	do			1,398 30	
General Hospital, Mattawa	do			1,298 70	
J. H. Stratford Hospital, Brantford	do			2,039 02	

St. Joseph's Hospital, Port Arthur	do				1,196 90	
Belleville Hospital, Belleville	do				1,564 13	
St. Vincent de Paul Hospital, Brockville	do				823 12	
General Hospital, Brockville	do				1,515 74	
General and Marine Hospital, Collingwood	do				373 70	
Nichol's Hospital, Peterborough	do				1,404 69	
St. Joseph's Hospital, Peterborough	do				1,566 30	
The Hotel Dieu Hospital, Windsor	do				1,066 20	
House of Industry, Toronto	do				2,380 56	
House of Providence, Toronto	do				6,512 73	
House of Providence (Incurable Ward), Toronto	do				4,464 00	
Home for Incurables, Toronto	do				5,573 10	
Aged Women's Home, Toronto	do				463 75	
St. John's Hospital, Toronto	do				1,250 10	
Convalescent Home, Toronto	do				1,084 95	
The Church Home, Toronto	do				295 89	
House of Refuge, Hamilton	do				2,707 53	
Home for Aged Women, Hamilton	do				598 85	
St. Peter's Home, Hamilton	do				567 90	
House of Industry, Kingston	do				1,459 00	
House of Providence, Kingston	do				2,444 68	
Roman Catholic House of Refuge, London	do				1,407 42	
Aged Men's Home, London	do				564 34	
Home for Aged Women, London	do				478 10	
		Carried forward			121,255 40	2,407,262 40

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			121,255 40	2,407,262 40
	HOSPITALS AND CHARITIES.—*Concluded.*				
The Treasurer—					
St. Patrick's Refuge, Ottawa	Legislative grant			3,334 03	
St. Charles' Hospice, Ottawa	do			1,775 27	
Home for the Aged, Ottawa	do			703 71	
Orphans' Home, Refuge Branch, Ottawa	do			449 54	
House of Providence, Guelph	do			840 91	
The Thomas Williams' Home, St. Thomas	do			401 10	
House of Providence, Dundas	do			2,322 95	
Home for the Friendless, Chatham	do			371 70	
The Widows' Home, Brantford	do			355 53	
Home for the Friendless, Belleville	do			216 50	
The Protestant Home, Peterborough	do			538 02	
House of Providence, Peterborough	do			288 20	
Old Ladies' Home, Galt	do			336 84	
Home for Friendless Women, Ottawa	do			732 90	
Convalescent Home, London	do			177 30	
Home for the Friendless, Windsor	do			752 64	
Roman Catholic Orphan Asylum, Toronto	do			2,110 40	
Orphan's Home, Toronto	do			1,168 52	
Girls' Home, Toronto	do			684 64	
Boys' Home, Toronto	do			729 00	

Newsboys' Lodgings, Toronto	do				83 08	
Infants' Home and Infirmary, Toronto	do				1,914 34	
St. Nicholas' Home, Toronto	do				428 52	
The Haven, Toronto	do				411 12	
St. Mary's Orphan Asylum, Hamilton	do				1,108 94	
Orphan Asylum, Hamilton	do				164 72	
Boys' Home, Hamilton	do				575 00	
Girls' Home, Hamilton	do				442 98	
Home for Friendless, Hamilton	do				579 06	
Orphans' Home, Kingston	do				470 28	
House of Providence Orphan Asylum, Kingston	do				382 12	
Hotel Dieu, Kingston	do				278 02	
Orphans' Home, Ottawa	do				427 76	
St. Patrick's Orphan Asylum, Ottawa	do				450 30	
St. Joseph's Orphan Asylum, Ottawa	do				782 84	
Roman Catholic Orphan Home, London	do				556 78	
Protestant Orphan's Home, London	do				413 18	
Women's Refuge and Infant's Home, London	do				358 93	
Protestant Home Orphan Branch, St. Catherines	do				113 62	
Orphan Asylum, St. Agatha	do				283 70	
Orphan Asylum, Fort William	do				291 46	
Hotel Dieu Orphanage, Windsor	do				35 92	
Industrial Refuge, Toronto	do				210 62	
Good Shepherd Female Refuge, Toronto	do				309 22	
Good Shepherd Magdalen Asylum, Ottawa	do				798 12	
Warwick & Sons	Printing and binding				140 75	
W. Barber & Bros.	Paper				18 19	
		Total Hospitals and Charities				151,574 67
		Carried forward				2,558,837 07

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward				2,558,837 07
	REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.				
	GOVERNMENT HOUSE.				
Consumers' Gas Co	Gas	743 80			
R. Irvine	Coal oil	6 00			
City Waterworks	Water	342 74			
Conger Coal Co	Fuel	225 29			
Elias Rogers & Co	do	831 07			
			2,148 90		
Pay lists	Wages of carpenters, bricklayers, carters, laborers, etc	1,925 63			
do	Women, house cleaning, etc	34 00			
G. Evans	Tinsmithing, etc	465 53			
W. Milligan	Painting, glazing, etc	1,883 17			
G. P. Buckley	Locksmithing	73 35			
G. Duthie & Sons	Slating	68 55			
J. Murphy	Lime whiting	182 30			
J. Fensom	Repairing elevator	82 45			
Jno. Inglis & Son	do boiler	20 54			
S. May & Co	do billiard table, etc	25 50			
W. O. Littleford	do china	3 30			
J. B. Smith & Sons	Lumber	367 30			
Rosebrugh & Sons	Hardware	29 60			
W. Maguire	Cement, pipe, etc	29 27			
Jas. Morrison	Castings, etc	42 07			
			5,232 56		
J. & J. L. O'Malley	Furniture, etc	56 85			
R. Walker & Sons	Furnishings	5 63			
J. Berwick & Co	do	10 33			
Cobban Manf'g Co	do	42 04			
Roberts & Son	do	41 35			
Ryrie Bros	do	58 75			
J. E. Ellis & Co	do	511 25			

J. Catto & Son	do	141 80			
Wm. Junor	do	52 03			
Estate Glover Harrison	do	12 63			
Jno. Smith	Flags and repairs	24 00			
S. B. Windrum	Clocks	10 00			
McDonald & Wilson	Ranges, etc	293 46			
			1,260 12		
Steele Bros.	Seeds	110 65			
Steele, Briggs & Muir Seed Co.	Bulbs	79 92			
J. A. Simmers	Plants, tools, etc.	30 50			
Stock & Co.	Gravel	5 00			
W. Jay	Soil	25 00			
			251 07		
G. Duthie & Sons	Clearing snow from roofs	10 00			
P. Burt	do walks	75 00			
W. R. Dossor	Cleaning chimneys	15 00			
D. W. Smith	do curtains, etc	125 90			
			225 90		
Sundry newspapers	Advertising *re* fuel		12 00		
				9,130 55	
	PARLIAMENT BUILDINGS.				
	MAIN BUILDING.				
Consumers' Gas Co.	Gas	1,603 19			
Waterworks Department	Water	358 56			
C. A. Burns	Ice	166 00			
Lake Simcoe Ice Supply Co.	do	58 82			
Conger Coal Co	Fuel	161 07			
Elias Rogers & Co	do	1,600 55			
			3,948 19		
Pay lists	Wages carpenters, bricklayers, carters, laborers, etc	687 89			
do	Wages, dusters, etc	1,212 48			
W. Milligan	Painting, glazing, etc	238 66			
George Evans	Tinsmithing, etc.	320 85			
Wheeler & Bain	do	32 10			
G. P. Buckley	Locksmithing, etc	109 90			
Duthie & Sons	Slating	43 55			
C. Potter	Repairing electric lighter	4 75			
C. W. Coleman	Care of clocks	85 00			
J. B. Smith & Sons	Lumber, etc	154 49			
Rosebrugh & Sons	Hardware	289 62			
Jas. Morrison	Castings, etc	134 00			
E. & C. Gurney Co	do	39 40			
			3,352 69		
Chas. Rogers & Sons Co	Furniture, etc.	67 00			
J. & J. L. O'Malley	do	315 95			
A. Walker & Sons	Furnishings	113 90			
	Carried forward	496 85	7,300 88	9,130 55	2,558,837 07

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	496 85	7,300 88	9,130 55	2,558,837 07
	PARLIAMENT BUILDINGS.—*Continued.*				
	MAIN BUILDING.—*Continued.*				
Hickson, Duncan & Co	Furnishings	11 12			
H. A. Nelson & Sons	do	126 05			
Nerlich & Co	do	13 70			
Caldecott, Burton & Spence	do	17 03			
The Pantecnetheca	do	15 38			
Jno. Macdonald & Co	do	40 00			
Gowans, Kent & Co	do	168 53			
W. H. Sparrow	do	9 50			
Wheeler & Bain	do	20 80			
John Catto & Co	do	6 00			
Wm. Junor	do	35 45			
Dominion Plating Co	do	49 10			
Art Metropole	do	10 00			
Toronto Photo Co	do	15 00			
Hooper & Co	do	5 40			
Estate Glover Harrison	do	6 50			
G. F Sproule	do	2 25			
W. Evans	do	60			
D. Pike	do	5 00			
			1,054 26		
W. Warin	Cleaning mace, etc	8 00			
Toronto Silver Plating Co	Replating	44 50			
			52 50		
G. Duthie & Sons	Clearing snow from roofs	18 00			
J. Malloy	do walks	33 38			
			51 38		
Sundry newspapers	Advertising *re* fuel		9 80		
				8,468 82	
	WEST WING.				
Conger Coal Co	Fuel	83 69			
Elias Rogers & Co	do	164 38			
Waterworks Department	Water	358 49			

Lake Simcoe Ice Co	Ice	27 00			
			633 56		
Pay lists	Wages of carpenters, bricklayers, laborers, etc.	483 87			
W. Milligan	Painting, glazing, etc	7 27			
Geo. Evans	Tinsmithing, etc	4 50			
W. J. Whitten & Co	do	137 95			
G. P. Buckley	Locksmithing	5 00			
C. W. Coleman	Repairing clocks	3 00			
Inspector of Weights and Measures	Inspecting scales	3 50			
			645 09		
Geo. F. Bostwick	Furniture, etc	9 15			
Chas. Rogers & Sons Co	do	90 85			
J. B. Smith & Sons	do	45 00			
J. & J. L. O'Malley	do	72 00			
J. Bruce	Furnishings	8 50			
Jno. Kay Son & Co	do	42 50			
Jno. Macdonald & Co	do	100 23			
Toronto Photo Co	do	6 00			
			374 23		
G. Duthie & Sons	Clearing snow from roofs	16 00			
J. Malloy	do walks	33 30			
			49 30		
Sundry newspapers	Advertising *re* fuel		6 00		
				1,708 18	
	EAST WING.				
Consumers' Gas Co	Gas	201 98			
Waterworks Department	Water	358 49			
Conger Coal Co	Fuel	59 40			
Elias Rogers & Co	do	81 54			
			701 41		
Pay lists	Wages of carpenters, bricklayers, carter, laborers, etc	679 24			
George Evans	Tinsmithing, etc	11 80			
G. P. Buckley	Locksmithing	78 50			
W. Milligan	Painting, glazing, etc	7 70			
C. W. Coleman	Care of clocks	25 50			
			802 74		
J. B. Smith & Sons	Lumber	183 00			
Rosebrugh & Sons	Hardware	103 55			
W Maguire	Pipe and cement	4 35			
			290 90		
Chas. Rogers & Sons Co	Furniture, etc	3 60			
Bryson & Ryan	do	141 80			
J. & J. L. O'Malley	do	32 56			
King & Yorston	do	13 90			
G. F. Bostwick	do	308 00			
Toronto Furniture Supply Co.	do	10 00			
	Carried forward	509 86	1,795 05	19,307 55	2,558,837 07

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	509 86	1,795 05	19,307 55	2,558,837 07
	PARLIAMENT BUILDINGS.—*Continued.*				
	EAST WING.—*Continued.*				
Office Specialty Mnfg. Co	Furniture, etc	164 00			
Jolliffe & Co	do	5 25			
Wheeler & Bain	Furnishings	23 05			
J. E. Ellis & Co	do	1 25			
Matthew Bros	do	9 30			
Toronto Photo Co	do	6 00			
J. Bruce	do	5 00			
J. Berwick & Co	do	13 70			
H. Manley	do	4 50			
Jno. Kay, Son & Co	do	102 50			
G. McFarlane	do	4 50			
Whatmough & Co	do	75			
A. McNair	do	2 00			
Rice Lewis & Son	do	90			
C. W. Coleman	Clock	9 30			
			861 86		
A. McDonald	Office cleaning	6 25			
E. McDonald	do	262 50			
J. Hughes	do	15 00			
F. Hughes	do	11 67			
Mrs. Jones	do	9 00			
			304 42		
G. Duthie & Sons	Clearing snow from roofs	16 00			
J. Malloy	do walks	33 32			
J. Ryan	Services as Acting Fireman	13 75			
			63 07		
Sundry newspapers	Advertising *re* fuel		6 00		
				3,030 40	
	EDUCATIONAL DEPARTMENT, NORMAL AND MODEL SCHOOL BUILDINGS, TORONTO.				
Consumers' Gas Company	Gas	410 73			
Waterworks Department	Water	1,081 29			
Knickerbocker Ice Co	Ice	9 00			

Conger Coal Co	Fuel	1,408 95				
Elias Rogers & Co	do	919 08				
Pay lists	Wages of carpenters, bricklayers, steamfitters and laborers, etc	906 02	3,829 05			
W. J. McCleary	Services as Carpenter	600 00				
M. McVicar	Wages as Night Fireman	105 00				
G. Ringham	Tinsmithing	194 80				
Estate Wm. Stanley & Co	Painting, glazing, etc	10 35				
J. B. Thomson	do papering, etc	132 60				
Shipway Manufacturing Co	Locksmithing	38 05				
E. H. Roberts	do	1 65				
J. Burnstein	do	1 50				
W. McGann	Upholstering	10 64				
H. Petrie	Steamfitting	2 45				
John Inglis & Sons	Repairing boiler	13 60				
Kent Bros	Care of clocks	120 00				
G. Pearsall	Hardware, etc	1 85				
M. & J. L. Hughes	do	5 68				
J. & A. Bertram	do	94 68				
Toronto Lead & Color Co	Oil	30				
American Oil Co	do	5 00				
Stewart & Wood	do	4 80				
Purdy, Mansell & Mashinter	Steam gauges	12 60				
James Morrison	Castings, etc	125 94				
Waterous Engine Works	Grates for boiler	71 20				
Gall, Anderson & Co	Lumber	105 01				
Gall Lumber Co	do	298 88				
F. Hillock	do	2 69				
W. Maguire	Brick, cement, etc	91 38				
G. F. Bostwick	Furniture, etc	650 30	2,866 67			
Jolliffe & Co	do	83 00				
J. & J. L. O'Malley	do	6 00				
Powell & Parkinson	Furnishings	14 10				
John Macdonald & Co	do	13 58				
T. Eaton & Co	do	25 51				
W. L. Murray	do	10				
American Fair	do	1 18				
John Kay, Son & Co	do	162 54				
J. Blood	do	80				
J. McCullough	do	5 78				
R. Simpson	do	3 45				
A. F. Barker	do	35				
A. M. Kavanagh	do	2 25				
J. Wright	do	50				
Common Sense Mfg. Co	do	2 00				
L. B. Montgomery	do	3 00				
A. McDonell	do	25				
G. Evans	do	4 50				
	Carried forward	979 19	6,695 72	22,337 95	2,558,837 07	

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	979 19	6,695 72	22,337 95	2,558,837 7
	EDUCATIONAL BUILDINGS.—*Continued.*				
Rice Lewis & Son	Furnishings	1 00			
E. Perryman	do	28			
G. Baxter	do	45			
Fletcher Manufacturing Co	do	13 36			
H. P. Davies & Co	do	24 48			
J. Langskill	do	2 60			
Hartley Bros	do	1 25			
E. A. Goodman	do	14 58			
Copp Clark Co	do	10 74			
Keith & Fitzsimons	do	6 00			
Robert Walker & Sons	do	152 01			
C. F. Adams Co	do	2 00			
J. Mounce	do	2 75			
Auld & Conger	Blackboards	27 18			
Map & School Supply Co	Liquid slating	5 40			
Mason & Risch	Tuning piano *re* Kindergarten	10 00	1,243 27		
O. Newcome	Rent of organ do	5 00			
M. Scott	Vases do	1 65			
T. Williamson	Washing towels do	25 00			
Pitcher & Manda	Seeds	1 80	41 65		
Steele Bros. Co	do	12 70			
Estate James Fleming	Plants	2 10			
Pitcher & Manda	do	25 75			
C. P. Industries	do	200 00			
J. Samuel	do	7 00			
Steele Bros. Co	Moss	1 25			
George Latham	Sodding	77 45			
Stock & Co	Gravel	2 30			
J. Davis & Son	Flower pots	13 80			
F. Illard	Lawn sprinkler	3 00			
Gutta Percha Rubber Co	Hose, etc	8 30			
Steele Bros. Co	Garden tools	7 15			
Geo. Pearsall	do	13 15			
Estate of J. Walker	Wheelbarrows	12 00			

T. H. Watkins	Lettering notice boards	3 75			
C. P. Industries	Clothing etc., for Gardener	21 00			
A. E. Fisher	Cartage, soil, etc	3 50			
J. Carruth	Work on grounds	24 00			
P. Bennett	do	15 00			
			455 00		
L. McCorkindale	Supplies, *re* cleaning	50 55			
Morse Soap Co	do	11 70			
J. W. McCullough	do	3 45			
R. Gilpin	do	25 00			
T. Williamson	do	25 00			
J. Abraham	do	25 00			
Sundry persons	Scrubbing	174 25			
			314 95		
G. Duthie & Sons	Clearing snow from roofs	30 00			
A. H. Ewing	do do walks	3 35			
J. E. Jeffery	do do do	1 50			
			34 85		
Street Railway Co	Car fares	1 10			
G. T. Railway Co	Freight charges	2 52			
Canadian Express Co	Charges	1 20			
Collector Customs	Duty charges	11 01			
P. Falvey	Cartage	148 00			
A. E. Fisher	do	12 00			
D. Manning	do	21 25			
L. McCorkindale	Paste	5 00			
			202 08		
H. M. Wilkinson	To pay sundries		3 16		
Sundry newspapers	Advertising *re* fuel		18 00		
				9,008 68	
	SIMCOE STREET PREMISES.				
Consumers' Gas Co	Gas	83 64			
Mrs. Crawford	Rent	1,500 00			
Waterworks Dept	Water	15 33			
Knickerbocker Ice Co	Ice	11 25			
Conger Coal Co	Fuel	21 60			
Elias Rogers & Co	do	90 84			
			1,722 66		
Pay lists	Wages, carpenters, bricklayers, carters, laborers, etc	9 00			
Geo. Evans	Tinsmithing, etc	47 48			
G. P. Buckley	Locksmithing	8 35			
W. Milligan	Reglazing	2 00			
W. Maguire	Pipe, cement, etc	9 26			
C. W. Coleman	Care of clocks	15 25			
			91 34		
King and Yorston	Furniture, etc	50			
J. B. Smith & Sons	do	14 00			
	Carried forward	14 50	1,814 00	31,346 63	2,558,837 07

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	14 50	1,814 00	31,346 63	2,558,837 07
	SIMCOE STREET PREMISES.—*Continued.*				
Chas. Rogers & Sons Co	Furniture, etc	25 50			
R. Kennedy	Furnishings	6 99			
Jno. Kay, Son & Co	do	404 74			
J. W. Waddell	do	3 75			
C. W. Coleman	Clock	1 75			
Mrs. Chase	Office cleaning	340 50			
J. Hughes	do	2 50			
Mrs. Jones	do	4 60			
Mrs. Scobley	do	2 60			
F. Hughes	do	3 75			
			811 18		
Sundry newspapers	Advertising *re* fuel		3 00		
				2,628 18	
	WELLINGTON STREET PREMISES.				
Consumers' Gas Co	Gas	147 31			
Dr. J. Thorburn	Rent	600 00			
Conger Coal Co	Fuel	67 60			
Elias Rogers & Co	do	2 39			
Waterworks Dept	Water	17 07			
Knickerbocker Ice Co	Ice	22 30			
			856 57		
Pay lists	Wages, carpenters, bricklayers, carters, laborers, etc	24 60			
Geo. Evans	Tinsmithing, etc	73 35			
G. P. Buckley	Locksmithing	21 35			
W. Milligan	Painting, glazing, etc	7 65			
J. & J. Taylor	Repairing safe	21 05			
C. W. Coleman	Care of clocks	7 50			
			155 50		
Whatmough Co	Furnishings	37 65			
Toronto Photo Co	do	12 00			
J. Milne & Co	do	9 50			
T. Eaton & Co	do	7 00			
The Pantechnetheca	do	6 25			
E. & C. Gurney Co	do	21 50			
			93 90		

Mrs. C. A. McDonald	Office cleaning	199 92			
J. W. Featherstone	Clearing snow from walks	12 00			
			211 92		
				1,317 89	
	MISCELLANEOUS.				
B. O'Byrne	Twelve months' salary as General Clerk of Works		1,200 00		
P. J. Crotty	do Carpenter		720 00		
M. McBrearty	do Plumber		900 00		
M. Quinn	do Assistant to Plumber		388 00		
A. E. Wickens	Services as Engineer		380 00		
Thos. Burns	do Assistant Engineer		76 00		
D. B. Wylie	do Elevator Conductor		35 00		
				3,699 00	
	NORMAL SCHOOL, OTTAWA.				
Ottawa Gas Co	Gas	58 80			
City of Ottawa	Water	217 34			
J. G. Butterworth & Co	Fuel	1,485 00			
T. Henry	do	293 50			
			2,054 64		
T. A. Hodson	Lumber, etc	7 66			
Stephens Bros.	Oil, varnish, etc	9 25			
Jas. White	Slating	458 00			
J. J. Lyons	Carpentering	238 85			
D. Goyer	Care of clocks	30 00			
			743 76		
James Hope & Co.	Furnishings	30 33			
Bryson, Graham & Co.	do	28 25			
G. Bailey	do	15			
			58 73		
J. Urquhart	Supplies re cleaning	50 00			
Joseph Delaire	do	50 00			
O. McDonald	do	50 00			
			150 00		
Steele Bros. Co	Seeds	14 35			
J. H. Dwyer	Plants	34 92			
C. Sinn	do	1 00			
J. H. Dwyer	Trees	14 75			
J. Holt	Manure	7 50			
			72 52		
James White	Cartage	55 00			
do	Clearing snow	153 00			
City of Ottawa	do	40 50			
			248 50		
Sundry newspapers	Advertising re fuel		8 50		
				3,336 65	
	Carried forward			12,328 36	2,558,837 07

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			42,328 35	2,558,837 07
	SCHOOL OF PRACTICAL SCIENCE.				
Consumers' Gas Co	Gas	292 63			
Waterworks Dept.	Water	104 66			
Conger Coal Co	Fuel	3 15			
Elias Rogers & Co.	do	1,391 71			
			1,792 15		
Pay lists	Wages of carpenters, bricklayers, carter, laborers, etc	231 32			
Geo Evans	Tinsmithing, etc	58 30			
M. O'Connor	Painting, glazing, etc.	327 14			
G. Duthie & Sons	Slating	4 90			
E. H. Roberts	Locksmithing	35 65			
Waterworks Dept.	Repairing pipe	5 60			
Douglas Bros	do ceiling, etc	136 56			
J. B. Smith & Sons	do windows	17 43			
G. F. Bostwick	do furniture	4 25			
			821 15		
Rosebrugh & Sons	Hardware	24 16			
McColl Bros	Engine oil	4 75			
Jas. Morrison	Castings, etc.	159 22			
W. Maguire	Pipe, cement, etc.	7 19			
			195 32		
Hees, Anderson & Co.	Furnishings	3 63			
F. W. Unitt	do	21 20			
Fletcher Mfg. Co	do	6 25			
Keith & Fitzsimons	do	25			
Cobban Mfg. Co.	do	10 15			
			41 48		
Mrs. Hill	Scrubbing	2 00			
Mrs. Allan	do	23 60			
Mrs. Barnes	do	11 00			
Mrs. Graham	Washing towels	10 15			
			46 15		
Matthews Bros	Cartage		1 75		
Sundry newspapers	Advertising *re* fuel		18 00		
				2,916 00	

AGRICULTURAL COLLEGE.

Guelph Gas Co	Gas	1,052 79			
Guelph Waterworks	Water	650 00			
H. G. Cockburn	Fuel	8 62			
Kloepfer & Co	do	44 69			
D. Kennedy & Son	do	3,402 57			
			5,158 67		
R. Stewart	Lumber, etc	53 05			
Burr Bros.	do	15 31			
J. M. Bond & Co	Hardware, etc	32 75			
G. B. Morris & Co	do	157 85			
Pringle & Clunis	do	77 27			
S. Rogers & Co	Engine oil	42 42			
Jas. Morrison	Castings, etc.	24 44			
Feek & Co.	do	3 04			
A. Robertson & Son	do	5 55			
J. Crowe	do	6 15			
J. M. Bond & Co	Iron pipe, etc	64 33			
W. Sunley	do	21 74			
			503 90		
A. Bruce & Son	Carpentering	87 68			
J. Damp	do	7 80			
H. Harper	Locksmithing, etc	3 65			
W. Sunley	Tinsmithing	38 65			
A. Mills	do	21 15			
R. H. Barber	Painting	17 00			
E. Stannard	do	88 55			
J. S. Moffatt	Painting, papering, etc	71 60			
J. J. Mahoney	Plastering, bricklaying, etc	37 94			
J. H. White	Whitewashing	82 40			
J. Waldron	do	3 80			
T. Matthews	Masonry	5 25			
L. McNulty	do	2 75			
Feek & Co	Plumbing	24 97			
Walker & Mahoney	do	6 60			
J. Brown	Steamfitting, etc	8 40			
W. Sallows	Blacksmithing	17 45			
A. Robertson & Son	Repairing boiler	1 85			
L. McCallum	do gas pipe	3 60			
W. J. Luke	do furniture	29 75			
S. & G. Penfold	do vehicles	75 25			
J. McConnell	do do	19 65			
			655 74		
F. B. Skinner & Co	Furniture, etc	7 75			
S. Spragge	do	43 00			
Stubbs & Rodgers	do	42 70			
R. Mitchell	Furnishings	154 80			
A. Davey & Son	do	6 90			
	Carried forward	255 15	6,318 31	45,244 35	2,558,837 07

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward ..	255 15	6,318 31	45,244 35	2,558,837 07
	AGRICULTURAL COLLEGE.—*Continued.*				
E. R. Bollert & Co	Furnishings	163 55			
J. E. McEldery	do	10 75			
N. Newkirk	do	4 50			
W. G. Smith & Co	do	3 80			
D. E. McDonald	do	3 81			
W. Hall	do	3 00			
G. B. Ryan & Co	do	129 64			
J. A. Tovell	do	4 20			
A. J. Little & Co	do	22 65			
M. J. Doran	do	1 25			
T. Luscombe	do	44			
J. D. Williamson & Co	do	20 20			
Geo. Beattie	do	1 50			
H. Macdonald	do	57			
J. Smith	do	7 70			
T. J. Day	do	71 50			
Waters Bros	do	33 86			
A. Bardwell	do	1 25			
A. Farley	do	1 00			
A. Stewart	do	1 50			
G. Howard	do	4 00			
Northey Mfg. Co	do	3 75			
Savage & Co	do	75			
Woods Fair	do	44			
J. W. Cober	do	5 75			
J. A. Angell	do	1 50			
J. H. Walker	do	3 50			
J. Burwash	do	3 50			
			765 01		
F. Watson	Services *re* sewage	18 32			
F. Winter	do	91 60			
International Sewage Co	Ferrozone, do	38 12			
			148 04		
Dominion Express Co	Charges	80			
Canadian Express Co	do	2 40			
G. T. Railway Co	Freight charges	4 76			

C. P. Railway Co	do	45			
			8 41		
T. H. Gemmell	Cleaning curtains	1 20			
W. Fizer	do chimneys	6 20			
			7 40		
	AGRICULTURAL HALL.			7,247 17	
Consumers' Gas Co	Gas	41 90			
Water works Dept	Water	20 00			
Knickerbocker Ice Co	Ice	8 80			
Conger Coal Co	Fuel	100 90			
Elias Rogers & Co	do	55 65			
			227 25		
L. B. Montgomery	Engineers' supplies	15 35			
Geo. Evans	Tinsmithing	18 80			
Shipway Mfg. Co	Locksmithing	75			
H. Kidd	Carpentering	4 55			
L. B. Montgomery	Plumbing, etc	5 90			
W. J. McGuire	do	8 94			
Keith & Fitzsimons	do	4 74			
			59 03		
Chas. Rogers & Sons Co	Furniture, etc	14 00			
Office Specialty Co	do	110 00			
J. & J. L. O'Malley	do	15 00			
G. F. Sproule	Furnishings	80			
Geo. Boxall	do	45			
T. Eaton & Co	do	75			
J. Campbell	do	59			
Brown Bros	do	1 50			
J. Milne & Co	do	1 70			
The Pantecnetheca	do	1 10			
Jno. Macdonald & Co	do	208 00			
			353 89		
Thos. Lynch	Washing towels	9 30			
Mrs. Jones	Office cleaning	167 00			
C. Moore	Cleaning chimneys	1 50			
J. Thompson	Clearing snow from roofs	1 50			
J. Ryan, sr	Cartage	30 00			
			209 30		
			849 47		
	Less amount received on account of lighting and heating		200 00		
				649 47	
	OSGOODE HALL.				
Consumers' Gas Co	Gas	592 32			
Conger Coal Co	Fuel	27 12			
Elias Rogers & Co	do	2,412 14			
	Carried forward	3 031 58		53,140 99	2,558,837 07

REPAIRS AND MAINTENANCE—GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Concluded.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	3,031 58		53,140 99	2,558,837 07
	OSGOODE HALL.—*Continued.*				
Waterworks Dept.	Water	150 42			
Knickerbocker Ice Co.	Ice	13 75			
			3,195 75		
Pay lists	Wages, carpenters, bricklayers, laborers, engineers, firemen, etc	2,547 40			
M. O'Connor	Painting, glazing, etc	188 53			
W. Milligan	do	3 03			
Geo. Evans	Tinsmithing, etc	1,162 24			
G. P. Buckley	Locksmithing	30 40			
T. L. Hicks	do	3 75			
Jos. Murphy	Plastering, etc	103 60			
D. Forbes	Repairing roofs	614 30			
Jno. Inglis & Son	do boiler	50 35			
E. Hodgkinson	do Furniture	1 00			
J. E. Ellis & Co.	do clocks	1 50			
W. Alexander	do do	15 00			
			4,721 10		
J. B. Smith & Sons	Lumber	75 15			
Rosebrugh & Sons	Hardware	80 65			
W. Maguire	Cement	3 25			
Jas. Morrison	Castings	8 25			
			167 30		
Jas. E. Ellis & Co.	Care of clocks	26 50			
W. Alexander	do	10 00			
			36 50		
King & Yorston	Furniture, etc	150 35			
J. Catto & Co.	Furnishings	12 55			
T. Clarkson	do	9 50			
J. T. Wilson	do	40 38			
Hooper & Co.	do	5 45			
T. Eaton & Co.	do	3 00			
H. A. Nelson & Sons	do	18 70			
W. H. Sparrow	do	10 00			
J. H. Sheaver	do	3 25			

P. O'Brien	do	1 00			
Caldwell & Hodgins	do	6 05			
			260 23		
Mrs. Sutherland	Office cleaning	176 50			
J. Smith	do	198 00			
D. W. Sutherland	do	24 95			
J. Cotton	do	6 60			
J. & J. L. O'Malley	Cleaning and laying carpet	5 95			
J. Milligan	do ashpit	9 90			
E. O'Brien	do do	11 55			
J. Welch	do do	3 30			
T. Hopkins	do chimneys	9 30			
			446 05		
G. Duthie & Sons	Clearing snow from roofs		38 00		
Sundry newspapers	Advertising *re* fuel		18 00		
			8,882 93		
	Less amount received on account lighting and heating		890 00		
				7,992 93	
	Total Repairs and Maintenance				61,133 92
	Carried forward				2,619,970 99

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward				2,619,970 99
	PUBLIC BUILDINGS.				
	ASYLUM FOR INSANE, TORONTO.				
J. B. Smith & Sons	Lumber, sewage	17 75			
W. C. McKenzie	Services as clerk of works	108 00			
Pay lists	Wages of carpenter, steam-fitters and laborers	134 55			
			260 30		
	FURNITURE AND FURNISHINGS.				
J. B. Smith & Sons	Lumber	432 55			
Gall Lumber Co	do	586 31			
John Robertson & Co	Castings, etc	65 55			
E. & C. Gurney Co	Pipe, etc	103 85			
Toronto Hardware Manfg. Co.	Iron Railing	120 00			
Stewart & Wood	Paints and oils	84 17			
J. Maloney	Brick and lime	641 81			
C. P. Industries	Brick	119 40			
John Vokes	Stone sills	93 13			
A. W. Godson	Sand	102 00			
Doty Engine Works Co	Hot water boilers, etc	245 00			
John Inglis & Sons	Hot water tank pipe, etc	344 17			
Bennett & Wright	Radiators	315 25			
F. H. Hyde	Steam tap, etc	88 75			
Boyle & Richardson	Sash weights	31 47			
Miles & Slater	Door frames, etc	208 40			
Douglas Bros	Metallic ceilings	315 00			
B. Watson	Masonry	435 60			
W. Tucker	do	418 32			
W. Clarke	Carpentry and iron work	592 00			
G. Duthie & Sons	Slating	344 00			
Keith & Fitzsimons	Alterations to bath-room and closets	556 50			
F. H. Hyde	Fillings for bath-room	148 42			
Williamson Book Co.	Books	15 00			

James Bain & Son	do etc	91 82		
T. H. McAllister	Dissolving apparatus, views, etc	113 40		
Collector of Customs	Duty charges- dissolving apparatus, views, etc	28 25		
C. W. Irwin	Brokerage do	50		
Canadian Express Co	Charges do	1 35		
C. Rogers, Sons Co	Furniture	1,105 55		
Byron & Ryan	do	63 70		
C. P. Industries	Steel and epiliptic beds	1,175 00		
John Kay, Son & Co	Carpets and linoleum	717 17		
Alexander & Anderson	do	181 97		
T. G. Foster & Co	do	94 57		
John Macdonald & Co	do	60 41		
T. Ligget	Matting	14 00		
G. F. Sproule	Furnishings	111 80		
Jolliffe & Co	do	191 20		
C. Zaroni	Busts	64 00		
G. T. Railway Co	Charges	45		
			10,421 79	10,682 09
	MIMICO COTTAGES.			
J. & E. Dickenson	On account contract cottages	24,494 63		
Purdy, Mansell & Mashinter	do heating do	2,072 26		
W. Clark	do lodge entrance cottages	1,601 25		
Toronto Electrical Works	do lighting cottages	488 66		
Garson & Purser	do refractory branch cottages	5,014 52		
A. J. Brown	do sewage disposal	3,588 78		
F. W. Potter & Co	Apparatus do	75 08		
D. Plewes & Co	Windmill pump, tank, etc., sewage disposal	199 45		
Northey Mfg. Co	Pump, boiler, etc., do	818 90		
Rice, Lewis & Sons	Rope, pails, etc., do	8 16		
Toronto Rubber Co	Hose, etc., do	26 25		
Northey Mfg. Co	Pipe, tools, etc., do	75 73		
Poole & Co	Castings, etc., do	372 67		
John Taylor & Co	Lime, do	13 85		
D. Hatton & Co	Brine, do	5 00		
C. G. Horetzky	Travelling expenses and disbursements, sewage disposal	20 10		
Robinson & Heath	Duty and freight on machinery, sewage disposal	31 47		
R. Brown	Services, sewage disposal	217 50		
Pay lists	Men employed do	138 70		
J. & E. Dickenson	On account contract drains	3,660 57		
A. J. Brown	do bridge front entrance road	1,000 00		
do	Work and material on water pipe dock	407 34		
do	Cement work on drain	77 42		
do	Plastering, filling up well, etc	276 29		
do	Building man-holes, etc	262 69		
Purdy, Mansell & Mashinter	Putting in sink	65 00		
do	Connecting steam kettles	245 00		
do	Pump, etc	475 00		
do	Castings, etc	394 40		
	Carried forward	46,126 67		10,682 09 2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE	$ c.	$ c.	$ c.	$ c.
	Brought forward	46.126 67		10,682 09	2,619,970 99
	MIMICO BRANCH.—*Continued.*				
Sundry newspapers	Advertising *re* tenders	10 00			
R. Bond	Cab hire	24 00			
C. G. Horetzky	Travelling expenses	25 15			
W. C. Mackenzie	do	2 25			
B. O'Byrne	do	1 20			
R. Chisholm	Services as clerk of works	728 00			
			46,917 27		
	MIMICO COTTAGES.				
	FURNITURE AND FURNISHINGS.				
Geo. Gray	Lumber	233 09			
J. Thompson	Sand	1 75			
John Inglis & Son	Material and work *re* gas well	4 40			
Gall, Anderson & Co	Lumber do	8 44			
W. Sharpe	Work of men do	30 00			
R. Rennie & Co	Slating do	20 60			
Garson & Purser	Lumber do	64 66			
M. & L. Samuel, Benjamin & Co	Rope do	45 94			
Casterline & O'Hara	Torpedo and gas burner do	125 96			
John Slater	Castings, etc do	11 45			
Purdy, Mansell & Mashinter	do do	194 40			
McKee & Marwick	Pipe, sand, pump, etc do	250 35			
A. R. Williams	Rent of hoisting material do	67 20			
J. Anderson	Services as well fitter and carpenter *re* gas well	124 00			
D. Love	do do	47 25			
F. Anderson	do do	113 40			
W. C. McKenzie	Services as clerk of works do	292 50			
Laundry Machinery and Supply Association	Washing machine and dry closet	1,350 00			
Wheeler & Bain	Range, etc	178 00			
Bramhall, Deane & Co	Cooking apparatus	729 79			
Collector of Customs	Duty on cooking apparatus	89 10			
Ontario Pump Co	Force pump for well, etc	40 00			

McMahon, Broadfield & Co	Crockery and glassware	115 50			
Wheeler & Bain	Tinware, etc	155 05			
Byron & Ryan	Furniture, etc	1,404 74			
McCallum & Hall	do	606 25			
C. Rogers & Sons Co	do	50 00			
Mathews Bros. & Co	Pictures, etc	194 48			
Jolliffe & Co	Mattrasses and pillows	703 00			
Byron & Ryan	do	266 50			
G. F. Sproule	Pictures, etc	144 00			
T. C. Watkins	Quilts, curtains, etc	226 65			
Jolliffe & Co	Blinds	232 03			
C. P. Industries	Steel beds and blankets	1,769 60			
Malcolm & Souter	Carpets, etc	494 68			
Wheeler & Bain	Furnishings	34 00			
do	Galvanized iron work, etc	209 00			
A. Herod	Plastering and cementing	64 40			
do	Masonry	56 70			
E. Burs	Digging well	124 00			
A. Hepburn	Laboring	22 92			
D. Love	Carpentering	114 75			
W. Burrows	Painting	25 00			
Canadian Express Co	Charges	8 45			
W. C. McKenzie	Travelling expenses and disbursements	16 38			
			11,060 36		
				57,977 63	
	ASYLUM FOR EASTERN ONTARIO.				
Canada Permanent Loan and Savings Co	On account, purchase of site		5,105 61		
B. Jones, G. A. McKenzie and A. Ford	do		9,894 39		
E. Irving	Services *re* title and disbursements		136 39		
Garson & Purser	On account of contract		3,600 00		
John Briggs & Sons	Stakes and cartage		13 31		
B. J. Saunders	Plan of grounds		10 60		
A. McKenzie	Caretaking of plans, etc		56 00		
K. Tully	Travelling expenses and disbursements		156 30		
M. Wilson	do		23 70		
T. M. Hennessy	do		37 00		
C. G. Horetzky	do		42 33		
B. O'Byrne	do		22 90		
F. R. Heakes	do		45 00		
R. P. Fairbairn	do		92 00		
Sundry newspapers	Advertising *re* tenders		823 39		
Geo. Thompson	Services as Draughtsman		356 00		
Pay lists	Men employed		24 26		
				20,438 58	
	Carried forward			89,098 30	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			89,098 30	2,619,970 99
	ASYLUM FOR INSANE, LONDON.				
J. Purdom	On account contract slaughter house	2,486 72			
F. W. Schwendimann	do boiler house	200 00			
J. Purdom	do main building	1,489 80			
do	do cottage for butcher	1,800 00			
do	do annexes and dining-rooms	18,000 00			
C. Wilson & Son	do for scales	200 00			
Douglas Bros.	Metallic ceiling	201 25			
J. Purdom	Repairing roof, etc	215 56			
W. Malloch & Co	Foundation for pump, etc	450 00			
A. D. Cameron & Son	Cement	3 50			
W. J. Craig	Lumber	11 90			
Hobbs Hardware Co	Pipe, etc	512 52			
F. R. Heakes	Travelling expenses	9 80			
C. Bodley	do	39 85			
K. Tully	do	27 50			
Sundry newspapers	Advertising for tenders	116 00			
C. Bodley	Services as Clerk of Works	1,256 00			
Pay lists	Men employed steam fitting	192 75			
			27,213 15		
	FURNITURE AND FURNISHINGS.				
W. J. Craig	Lumber, etc	1,205 59			
J. H. Belton & Son	do	80 94			
J. Matheson	Door sills	9 00			
Thos. Greene & Co	Frames	118 60			
James Johnston	Brick	920 00			
Bowman & Co	Lime	30 00			
W. J. Element	do	11 90			
James Breen	Stone	285 25			
J. Anderson	Gravel	56 00			
C. P. Industries	Irons for slaughter house	106 35			
P. Stafford	Services and expenses	41 30			
E. Leonard & Sons	Repairing boiler	160 86			
Stevens & Burns	Castings, etc	56 99			

James Reid & Co.	Furnace pipe, etc.	123 52			
do	Hardware, etc	5 60			
C. P. Industries	Steel beds	233 00			
Bennet Furniture Co.	Benches	805 00			
S. Dunlop	Masonry	91 50			
Wm. Copp	Bricklaying	123 75			
J. Fleming	do	46 50			
E. Fleming	do	40 00			
D. McKenna	do	31 50			
F. Young	do	30 00			
W. Barry	do	15 75			
R. Winslow	do	30 75			
W. Johnston	do	15 00			
T. Edwards	do	16 50			
			4,691 15		
	ASYLUM FOR INSANE, HAMILTON.			31,904 30	
F. W. Schwendiman	On account contract farm buildings, etc	5,803 50			
do	do annexes for dining rooms, etc	17,100 00			
J. & E. Dickenson	Balance contract water tank, cottages, etc.	3,273 99			
T. H. A. Begue	Services and expenses as arbitrator *re* purchase of land	146 52			
E. J. Senkler	do do	144 00			
H. Taylor	do do	107 70			
G. F. Jelf	Bill of costs *re* purchase of land	464 91			
City Hamilton	Allowance for construction of sewer	7,500 00			
J. & E. Dickenson	Bricklaying, masonry, carpentering, etc.	340 00			
James Findley	Repairing roof	69 00			
F. W. Schwendiman	Repairing sewer	492 11			
Laidlaw Mfg. Co.	Manhole covers	114 00			
Killey, Beckett Engine Co.	Pump, etc., for tank	1,530 00			
E. & C. Gurney Co.	Furnace, etc.	138 63			
F. R. Heakes	Travelling expenses	12 95			
C. G. Horetzky	do	17 80			
Kivas Tully	do	19 60			
Sundry newspapers	Advertising for tenders	36 00			
H. G. McMan	Services clerk of works	1,256 00			
			38,566 71		
	FURNITURE AND FURNISHINGS.				
Aitchison & Co.	Lumber	145 71			
M. Brennan & Sons	do	175 27			
Stanley Mills Co.	Hardware	10 20			
F. W. Schwendiman	Brick, lime, sand, etc.	79 00			
H. Habron	Masonry	108 37			
Pennington Baker & Co.	Furniture, etc.	531 25			
J. Eastwood & Co.	Books	201 52			
D. T. McAinsh	do	21 00			
			1,272 32	39,839 03	
	Carried forward			160,841 63	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			160,841 63	2,619,970 99
	ASYLUM FOR INSANE, KINGSTON.				
J. McLeod	On account of contract, slaughter-house, etc	3,226 16			
C. Wilson & Sons	Scales, slaughter-house, etc	200 00			
W. B. & S. Anglin	Lumber, do	25 00			
E. Wishart	Carpentering do	21 00			
Elliott Bros	On account contract, water supply	1,258 00			
Northey & Co	do pumps	1,050 00			
McKelvey & Birch	Steamfitting, castings, etc	444 88			
Kivas Tully	Travelling expenses	7 70			
The Donelly S. & W. Co	Services, etc., of diver	47 61			
Sundry newspapers	Advertising for tenders	12 00			
J. B. Reid	Services, Clerk of Works	836 00			
			7,128 35		
	FURNITURE AND FURNISHINGS.				
S. Anglin	Lumber, etc	1,077 67			
The Rathbun Co	do	256 63			
J. McLeod	Sash, doors, etc	16 75			
A. Caldwell & Son	Flooring, etc	108 41			
A. Chown & Co	Hardware, etc	155 58			
A. Strachan	do	202 49			
Rice Lewis & Son	Iron work, etc	516 00			
Douglas Bros	Ceiling iron	161 70			
Elliott Bros	Iron pipe, furnaces, etc	729 39			
Kingston Foundry & Machinery Co	Boiler and tank, etc	234 60			
Barlows Savery Co	Jacket kettle	57 00			
C. P. Industries	Slaughter-house, irons, etc	126 35			
McKelvey & Birch	Filling up furnace, range, etc	877 09			
do	Steel baths	96 00			
do	Cement, etc	79 98			
W. D. Martin	Tile, etc	103 12			
Elliott Bros	Tinsmithing	21 70			
G. A. Spotswood	Drilling gas wells	2,352 75			
McKelvey & Birch	Pipe, casting, etc., gas wells	80 03			
James Reid	Furniture	291 00			

H. Braine	do	410 38			
C. P. Industries	Steel and epiliptic beds	633 00			
G. F. Sproule	Pictures, etc	100 45			
Matthews Bros. Co	do	100 45			
J. C. Hardy & Co	Sheetings	46 83			
Robertson Bros	Furnishings	111 94			
Thos. McAuley	Books	78 10			
W. Anglin	To pay freight and duty charges	24 41			
J. B. Walker	Purchase of land	2,100 00			
George Noyes	do	1,450 00			
J. L. Whiting	Legal services	25 00			
Pay lists	Wages, masons, carpenters, etc	900 00			
			13,527 80		
				20,656 15	
	ASYLUM FOR IDIOTS, ORILLIA.				
Douglas Bros	Balance contract, sheet-iron ceilings	600 65			
do	do ventilation on roof	279 00			
A. Tait	Lumber	46 57			
Longford Manufacturing Co	Shingles	21 50			
S. Watson	Brick	4 80			
W. G. Bingham	Hardware	36 02			
D. Love	Carpentering	84 37			
W. Hardy	do	38 50			
T. Taylor	do	21 00			
G. H. Mills	Lathing and plastering	56 00			
J. R. Eaton	Tinsmithing, etc	58 25			
R. Mainer	do	47 54			
F. R. Heakes	Travelling expenses	7 45			
Sundry newspapers	Advertising for tenders	6 50			
			1,308 15		
	FURNITURE AND FURNISHINGS.				
A. Tait	Lumber	136 75			
W. Salter	do	13 22			
J. A. Saunders	Carpentering	77 61			
A. Bramner	Gate fastenings	3 75			
W. G. Bingham	Hardware	17 22			
M. Millar	do	17 74			
Garson & Purser	Implements	46 00			
J. B. Mitchell	Sewing machine	50 00			
Malcom & Souter	Furniture, etc	213 90			
A. F. Bronskill	Piano	300 00			
Geo. F. Sproule	Pictures, etc	132 05			
Matthews Bros. & Co	do	124 62			
J. R. Eaton	Picture moulds, etc	42 62			
H. Cooke & Co	Wall paper, etc	43 92			
Times Publishing Co	Paper	14 30			
	Carried forward	1,233 71	1,308 15	180,497 78	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	1,233 71	1,308 15	180,497 78	2,619,970 99
	ASYLUM FOR IDIOTS, ORILLIA.—*Continued.*				
	FURNITURE AND FURNISHINGS.—*Continued.*				
Fortice & Jorgood	Papering, etc	30 05			
Crumley Bros	Ticking	8 00			
E. & C. Gurney Co	Boiler for greenhouse	252 80			
G. H. Mills	Concreting greenhouse floors	42 75			
S. R. Earle	Air injector and exhauster	40 00			
W. Shea	Work on platform	44 70			
E. Warner	Digging postholes	20 38			
W. H. Town	do	6 18			
Pay lists	Work on grounds	597 35			
			2,275 91		
				3,584 06	
	REFORMATORY FOR BOYS.				
	FURNITURE AND FURNISHINGS.				
J. Craiger & Son	Lumber, etc		189 92		
D. Campbell	do		133 20		
W. Grier	do		82 00		
D. Davidson	do		513 96		
C. Beck M'f'g Co	do		260 70		
Paul Bros. & Davenport	Sash, etc		83 12		
W. Wirt	Brick		134 45		
W. Ingram	do		209 09		
A. Tessier	Lime		51 05		
Colman Hamilton Co	Cement		47 70		
Geo. H. Wright	Hardware, etc		165 00		
D. J. Shanaghan	do		34 57		
Rice Lewis & Son	Tools, etc		84 96		
P. Payette & Co	Castings, etc		111 45		
James Morrison	do		123 42		
W. J. McGuire & Co	do		211 06		
Hamilton & Toronto Sewer Pipe Co	Pipe		65 88		
F. Dorwenworth	New roof to boiler room		85 07		

G. H. Wright	Repairing eave trough engine house		377 81		
G. Duthie & Sons	Slating roof carpenter shop		512 40		
W. Ingram	Bricklaying, etc		164 25		
J. Plaxton	Plumbing		71 32		
A. M. Lemoins	Horse		100 00		
D. J. Shanaghan	Wagonette		200 00		
P. Grossman & Sons	Musical instruments		210 00		
J. Irwin	Carpets etc		143 21		
Pay lists	Wages of men employed		1,830 77		
				6,196 36	
	REFORMATORY FOR FEMALES.				
City Toronto	Block-paving and sewerage	513 85			
James Morrison	Castings, pipe, etc	393 25			
Geo. Evans	Tinsmithing, etc	78 05			
W. Maguire	Cement	6 50			
Pay lists	Wages steamfitter, bricklayer, carpenter, etc	464 17			
			1,455 82		
	Furniture and Furnishings.				
J. B. Smith & Sons	Lumber	346 83			
MacBeth Bros	do	52 23			
Stewart & Wood	Paints, oils, etc	172 65			
W. J. Brown	Castings	9 45			
J. Maloney	Cement, lime and sand	18 27			
R. Walker & Sons	Carpet, etc	170 07			
Byron & Ryan	Upholstering, etc	23 26			
J. Ross	Carpentering etc	356 25			
A. Campbell	do	236 25			
G. W. Gore	Bricklaying	44 00			
Bursar Central Prison	Prison labor	133 75			
			1,563 01		
				3,018 83	
	CENTRAL PRISON.				
	Furniture and Furnishings.				
J. B. Smith & Sons	Lumber		6,281 05		
H. F. Hodgson	Timber		6 20		
Ontario Forge & Bolt Co	Bolts, nails, etc		130 79		
Rice Lewis & Son	Iron and hardware		1,256 93		
Lander Bros	Valves		66 90		
H. S. Howland, Sons & Co	Pulleys, sash, etc		25 29		
John Inglis & Sons	Castings, etc		522 04		
St. Lawrence Foundry Co	do		92 52		
C. Sellers & Co	do		34 02		
J. & A. Bertram	do		63 20		
	Carried forward		8,478 94	194,297 03	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		8,478 94	194,297 03	2,619,970 99
	CENTRAL PRISON—*Continued.*				
	FURNITURE AND FURNISHINGS.—*Continued.*				
E. & C. Gurney Co	Castings, etc		70 00		
Sanderson Pearcy & Co	Oil, glass, etc		495 46		
H. S. Howland, Sons & Co	Pulleys, sash, cord, etc		50 40		
E. Terry	Cement, fire brick, etc		133 50		
R. Carroll	do		66 00		
Ontario Lime Association	do		176 00		
R. Whillans	Sand, stone and lime		643 23		
Carrol & Vick	Rubble stone		322 00		
Toronto Lime Co	Lime		228 00		
John Aldridge	Brick, stone and masonry		2,441 00		
W. Maguire	Fire clay, pipe, etc		123 57		
do	Tile		6 50		
R. Carrol	Sewer pipe		101 45		
Bertram & Co	Gas pipe, etc		372 95		
Robert Rennie	Slating		1,467 98		
Metallic Roofing Co	Brick siding		22 66		
G. T. Railway Co	Repairing tracks		598 33		
A. Campbell	Carpentering		82 50		
John Hutt	Work on well		123 00		
McQuillan & Co	do and castings		172 68		
J. Aldridge	Work on new buildings		350 00		
Pay lists	Wages of carpenters and masons, work on new buildings		703 50		
C. P. Railway Co	Freight charges on stone		344 48		
do	Tanks and kettle		10 00		
F. B. Polson	Tanks		300 00		
Polson Iron Works Co	Soap kettle		50 00		
Bennet & Wright	Putting in wash tub and sink, etc		165 63		
Wheeler & Bain	Eavetroughs, etc		229 26		
A. R. Williams	Pulsometer, rent of pump, etc		147 32		
Consumers Gas Co	Turntable		250 00		
R. J. Brown	Loading turntable		15 00		
McGregor, Gourley & Co	Planer		201 88		
Miller & Richards	Press and rollers		212 50		
A. R. Williams	Duplex pump		342 00		

John Inglis & Sons	Shafting, etc		144 52		
McGregor, Gourley & Co	Woolen machinery		274 55		
Sprong & Duckson	do		400 00		
Kennyon Bros.	Drying and tentering machine		1,675 00		
G. T. Railway Co	Freight charges on machinery		211 19		
Watson Machine Co	Binder twine machinery		18,000 00		
Letheroid M'f'g Co	Cordage for binder twine machinery		250 09		
Robinson & Heath	Duty and freight charges on binder twine machinery		3,164 45		
Collector Customs	Duty on binder twine machinery		3,225 00		
James Massie	Travelling expenses *re* purchase of binder twine machinery		62 93		
Mrs M. A. White	Board of man while setting up machinery		10 00		
				46,915 45	
	INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE.				
J. Forin	On account contract bakery, etc	3,072 75			
James Dempster	Building oven do	300 00			
Garson & Purcer	On account contract—sewage disposal	2,187 92			
Northey & Co	do pump do	470 00			
Northey Mfg. Co	Pipe, valves, etc do	94 35			
Foster & Foster	Castings, etc do	32 46			
James Morrison	do do	308 39			
Poole & Co	do do	310 83			
International Water & Sewage Co	Ferozone do	343 80			
Thomas Hanley	Cement, bricks, labor, etc do	307 33			
J. Dolan	do do	156 63			
Foster & Foster	Repairing pump, pipe, etc do	117 99			
Smith Bros.	Cart do	75 00			
Thomas Walsh	Digging trench and laying sewer do	100 00			
T. Thompson	Opening drains do	193 95			
W. W. Chown & Co	Plumbing, etc, do	89 50			
Lewis & Sills	Pulleys, etc do	5 05			
R. Templeton	Varnish, etc do	3 15			
T. Luscombe	Labor do	17 50			
T. Hanley	Carpentering do	8 91			
R. Mathison	To pay freight and duty charges on ferozone—sewage disposal	208 58			
J. Inglis & Son	Water governor and feed pump do	227 15			
E. & C. Gurney Co	Radiators, etc	182 48			
M. Moon	Painting and bronzing radiators	46 00			
James Morrison	Pipe castings, etc	679 13			
W. Malcolm	do	1 50			
G. & J. Brown	do	1 35			
H. H. McInrick	do	17 75			
J. W. Walker	Hardware, etc	35			
Toronto Rubber Co	Hose, etc	3 20			
Conger Bros	Candles	5 00			
Wallbridge & Clark	do	1 80			
Express Co	Charges	1 20			
	Carried forward	9,571 00		241,212 48	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	9,571 00		241,212 48	2,619,970 99
	INSTITUTION FOR THE DEAF AND DUMB, BELLEVILLE.—*Continued.*				
M. Hogan	Cartage	7 50			
W. J. Smith	Travelling expenses	6 87			
C. G. Horetzky	do	97 95			
Kivas Tully	do	20 25			
M. MacBrearty	do and disbursements	105 00			
Sundry newspapers	Advertising for tenders	15 00			
Sundry persons	Board of men	120 00			
W. J. Smith	Service as Clerk of Works	1,044 00			
Pay lists	Wages steamfiitters, etc	1,197 53			
			12,185 10		
	FURNITURE AND FURNISHINGS.				
A. M. Pringle	Lumber, etc	269 90			
Flint & Holton	do	46 36			
C. P. Holton	do	119 25			
J. Forin	Lime, plaster paris, etc	20 40			
Hart Bros. & Lazier	Pipe, etc	16 20			
C. B. Scantlebury	Wall paper	34 63			
R. Templeton	Paints, oils, etc	44 63			
D. M. Waters	do	117 30			
Scarfe & Co	do	129 50			
F. Dolan	Plastering	55 20			
M. Moore	Painting, graining, etc	174 00			
Thompson & Co	Mirrors	11 00			
J. G. Frost	Furniture, etc	294 70			
Canadian Office and School Furnishing Co	do	181 95			
C. P. Industries	Steel beds, etc	381 43			
George Ritchie & Co	Furnishings	337 15			
M. L. Hughes	do	310 03			
J. A. Conger	do	48 60			
R. J. Orr	do	40 00			
W. W. Chown & Co	Stoves	62 50			

G. F. Pendrith	Dough mixer	125 00			
Gwatkin & Son	Printing press, type, etc	888 12			
J. C. Gordon	Electros	18 00			
Derochie Bros	Water motor	100 00			
Bell Telephone Co	Apparatus	25 00			
Oldrieve & Horne	Ensign, mast, etc	160 00			
W. R. Wilson	Trees	25 00			
R. Gilbert	Gravel	17 60			
James Orr	Teaming gravel	80 00			
D. Appleton & Co	Books	32 75			
Presbyterian News Co	do	19 60			
Standard Publishing Co	do	82 95			
Pay lists	Wages of carpenters, painters and laborers	500 00			
			4,768 75		
				16,953 85	
	INSTITUTION FOR THE BLIND, BRANTFORD.				
Garson & Purcer	On account contract gymnasium	61 32			
Treasurer City Brantford	Construction sewer	8,000 00			
Knowles & Nott	Ventilator	31 50			
Garson & Purcer	Plate for ventilator	7 00			
H. Welch	Sewer pipe, etc	164 00			
Kivas Tully	Travelling expenses	10 45			
			8,274 27		
	FURNITURE AND FURNISHINGS.				
Schultz Bros	Lumber	576 96			
John Bishop & Son	Paints and oils	82 66			
J. A. Ritchie	Painting, etc	163 75			
R. C. Chave	do	140 00			
P. C. Allan	Apparatus for gymnasium	281 00			
W. G. Raymond	Piano	390 00			
Canadian office and school furniture Co	Desks	98 00			
C. P. Industries	Steel beds	164 00			
G. Duncan	Carpet, etc	78 59			
D. Furness	Tree planting	95 00			
J. Furness	Sodding and laying walks	32 50			
Mesiner Bros	Bay mare	100 00			
			2,205 46		
				10,479 73	
	AGRICULTURAL COLLEGE, GUELPH.				
J. Damp	On amount contract Convocation Hall, etc		10,369 92		
Keith & Fitzsimons	Gas fittings, etc		345 04		
Burr Bros	Chairs, etc., Convocation Hall, etc		605 60		
E. R. Bollert	Furnishings, do		42 26		
Pay lists	Men employed on grounds, Convocation Hall, etc		207 33		
	Carried forward		11,570 15	268,646 06	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		11,570 15	268,646 06	2,619,970 99
	AGRICULTURAL COLLEGE GUELPH.—*Continued.*				
J. Damp	On amount contract soft water tanks, etc		1,724 33		
Purdy, Mansell & Mashinter.	do heating appliances, etc		2,613 00		
Rice, Lewis & Son	Boiler, etc., do		337 00		
A. Clarke	Furnaces do		327 00		
J. M. Bond	Iron pipe, etc., do		83 45		
James Morrison	Castings, etc., do		34 49		
Keith & Fitzimons	Radiators, etc., do		258 37		
Northey & Co	Pump, etc., do		97 25		
A. Robertson	Iron work, do		44 05		
J. J. Mahoney	Brick bricklaying, etc., do		168 67		
L. McCallum	Services at radiators do		8 80		
F. J. Hough	On account contract piggery, greenhouse, etc		2,700 00		
R. Mahoney	Alterations and additions to dairy building and piggery		1,163 76		
J. J. Mahoney	Carpentering do		21 55		
R. Stewart	Lumber do		1,192 94		
R. H. Barber	Painting do		64 95		
W. Scrivens	do do		132 00		
Foster & Rundle	Building brick tank do		102 00		
G. B. Morris & Co	Hardware, etc do		100 21		
Pringle & Clunis	do do		82 68		
J. M. Bond & Co	do do		40 00		
J. Morrison	Castings, etc., do		28 14		
Dodgewood Split Pulley Co.	Shafting and pulleys do		155 50		
D. Kennedy & Son	Lime and tile do		20 25		
P. Mulrooney	Sand do		15 00		
Sundry persons	Wages do		873 49		
Lyman Bros & Co	Apparatus, Chemical Laboratory		99 58		
Eimer & Amend	do do		179 52		
C. Baker	Microscopes, etc., do		86 89		
James Morrison	Pipe, etc., do		20 36		
A. Roberton	Tank, etc., do		47 48		
Keith & Fitzsimons	Plumbing, castings, etc., sewage disposal		748 35		
F. W. Winter	Cartage do		1 00		
C. Rogers & Sons Co	Iron stools, Botanical Laboratory		35 00		
Burr Bros	Furniture, do		107 55		
J. Morrison	Pipe, etc., do		11 30		

P. Martin	Blackboard, Botanical Laboratory		10 00		
J. McCausland & Son	Painting, glazing, etc., Botanical Laboratory		54 98		
J. S. Moffat	Painting, etc., do		8 00		
R. Stewart	Lumber, etc		64 49		
G. Howard	Galvanized iron, etc		8 00		
D. M. Bond & Co	Pipe, etc		11 15		
J. Morrison	Castings, etc		3 00		
W. Sallows	Bolts, etc		3 00		
D. Kennedy & Son	Cement, pipe, etc		39 15		
P. Mulrooney	Sand, etc		5 85		
H. Benallick	Brick, cement, etc		7 40		
W. Sunley	Smokestack, etc		12 73		
Globe Furniture Co	Settees		189 50		
P. Spragge	Furniture		170 75		
J. Kay Son & Co	Curtains, etc		24 35		
C. Potter	Cylinders		88 22		
T. J. Day	Blinds		25 00		
Quaker City Machine Co	Furnishings		18 70		
J. W. Queen & Co	do		19 30		
P. C. Allan	Apparatus, etc., for Gymnasium		490 50		
W. J. Stevenson	Swords do		41 50		
P. Spragge	Mattrass do		4 00		
G. T. Railway Co	Freight charges		12 29		
Express Co	Charges		9 22		
F. R. Heakes	Travelling expenses		26 95		
C. G. Horetzky	do		18 10		
Kivas Tully	do		5 50		
Sundry newspapers	Advertising for tenders		12 00		
Sundry persons	Labouring, etc		81 07		
John Brown	Services as Clerk of Works		1,116 00		
			27,876 76		
	Less refund *re* tank contract		720 00		
				27,156 76	
	EDUCATION DEPARTMENT AND NORMAL SCHOOL, TORONTO.				
R. G. Olmstead	On account contract iron fence		4,554 71		
Elliott & Son	do do assembly hall		1,703 00		
W. Park	Scaffolding for painters do		125 00		
J. & A. Bertram	Hardware, glass, etc		63 35		
Hodge & Son	Plastering		5 94		
James Murphy	do		30 00		
M. O'Connor	Painting, glazing, etc		213 00		
J. Drew	Travelling expenses		10 00		
W. J. Smith	do		10 00		
John Drew	Services as Clerk of Works		458 50		
				7,173 50	
	Carried forward			302,976 32	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			302,976 32	2,619,970 99
	NORMAL SCHOOL, OTTAWA.				
J. J. Lyon	On account contract addition to assembly and class rooms		14,500 00		
Jas. White	On account contract boiler house		630 00		
Purdy Mansell and Mashinter	do do steam heating, addition		3,916 68		
Sanitary Plumbing Co.	Castings, etc		140 83		
James White	Repairing furnace, plastering, etc		541 75		
do	Painting, etc		565 08		
do	Carpentering, etc		909 20		
do	Cementing roof		283 50		
W. J. Campbell	Ash-pan for boiler		80 00		
F. R. Heakes	Travelling expenses		86 80		
Kivas Tully	do		89 10		
Sundry newspapers	Advertising for tenders		21 20		
A. R. McDonald	Services as Clerk of Works		732 00		
				22,496 14	
	SCHOOL OF PRACTICAL SCIENCE, TORONTO.				
E. Howard, Watch & Clock Co	Regulator and chronograph		746 00		
Gertcher Electric Light and Power Co.	Dynamos, etc		366 59		
A. Hurlimann	Micrometer		55 36		
Troughton & Simons	Theodalite, etc		560 40		
Map and School Supply Co.	Bottles		561 91		
H. J. Green	Thermometers		39 65		
B. Feress	Apparatus		198 59		
Newton & Co.	do		716 35		
Map and School Supply Co.	Assaying apparatus		891 64		
J. Lawson	Electrical supplies		65 72		
Toronto Construction and Electrical Supply Co.	Supplies		73 62		
Bennet & Wright	do		80 00		
Canadian General Electric Co.	do		21 81		
W. S. Smith	do		9 80		
J. G. Ramsey	Photo supplies		1 50		
Eastman & Co.	do		21 00		
W. F. Petrie	Dynamo stands, etc		60 10		

John Fensom	Hydraulic machinery		491 49		
Polson Iron Works Co	Lathe, etc		20 91		
Robb & Kay	Galvanized iron work, etc		96 25		
Douglas Bros	Sheet iron work, etc		215 59		
W. Rolston & Son	Foundation for apparatus		278 00		
J. E. Ellis & Co	Placing and adjusting apparatus		45 75		
Geo. F. Haworth & Co	Belting		272 28		
Waterous Engine Works	Grip pulleys		82 56		
Dodgewood Split Pulley Co	Pulleys		36 42		
G. F. Pendrith	do		35 00		
Crosby Steam Gauge and Valve Co	Gauges		26 55		
Polson Iron Works	Painting engine pump, etc		84 00		
H. W. Petrie	do do		43 00		
Richle Bros.' Testing Machine Co.	Axle tester, etc		650 00		
W. A. Rogers'	Yard and metre, etc		171 75		
J. B. Smith & Sons	Lumber, tables etc		527 74		
C. Rogers & Sons Co	Boxes for minerals		120 00		
W. Maguire	Firebrick, etc		23 51		
John Vokes	Stone		50 25		
Burns & McCormack	Gravel		2 00		
McColl Bros. & Co	Oil		11 25		
A. E. Foote	Acids		32 75		
Rice Lewis & Son	Hardware		69 12		
Geo. Pearsall	do		1 80		
Rosebrugh & Sons	do		19 25		
J. Whitfield	Bolts, washers, etc		89 56		
Trelvar, Blashford & Co	Castings, etc		33 93		
James Morrison	do		9 18		
Wilson & Cousins	do		24 00		
Thomas Deane	do		10 33		
Northey Manufacturing Co	do		3 00		
John Fensom	do		5 56		
Doty Engine Works	do		42 57		
Purdy, Mansell & Mashinter	Pipe, castings, etc		612 24		
C. Rogers & Sons Co	Furniture		190 25		
Geo. H. Hees, Son & Co	Window shades, etc		60 58		
R. Kay	Guards and pans		38 00		
Coulter & Campbell	Brass hand-rail		45 00		
Gutta Percha & Rubber Manufacturing Co	Furnishings		5 65		
J. Macdonald & Co	do		9 20		
Cobban Manufacturing Co	do		71 04		
J. Lecker	do		84		
G. W. Dent	do		4 00		
Fletcher Manufacturing Co	do		1 75		
T. G. Rice	do		19 00		
Toronto Rubber Co	do		3 60		
	Carried forward		9,156 54	325,172 46	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		9,156 54	325,472 46	2,619,970 99
	SCHOOL OF PRACTICAL SCIENCE, TORONTO.—*Continued.*				
Buffalo Dental Mnfg. Co	Furnishings		27 45		
Kilgour Bros	do		12 00		
G. B. Meadows	do		31 75		
Thomas Henry	Architectural books		162 00		
Rowsell & Hutchison	do		65 50		
Henry & Co	Teaming		2 70		
Robinson & Heath	Duty and freight charges, etc		181 32		
M. O'Connor	Painting, glazing, etc		274 09		
Geo. Evans	Tinsmithing, etc		93 75		
Jas. Murphy	Plastering, etc		35 13		
G. Duthie & Sons	Slating		14 73		
Pay lists	Wages of carpenters, steamfitters, etc		752 10		
				10,808 97	
	OSGOODE HALL, TORONTO.				
J. B. Smith & Sons	File cases, etc			275 80	
	GOVERNMENT HOUSE.				
	On acconnt contract gardener's cottage		649 51		
Garson & Purcer	Brick, etc		24 47		
do	do			673 98	
	EQUIPMENT AND FURNISHING NEW PARLIAMENT BUILDINGS, FITTING UP GROUNDS, Etc., MAKING ROAS, PAVEMENTS, Etc.				
Bennett & Wright	On account contract, gas and electric fixtures		3,685 95		
Otis Bros. & Co	do Elevators		7,520 00		
Office Specialty Co	do Vault fittings		3,470 00		
W. Simpson	do Book-stacks, shelving etc., library, reading-room, etc.		2,583 00		
Canadian General Electric Co.	Electric plant		240 56		
Toronto Incand'scnt Light Co.	do		190 90		
Royal Electric Light Co.	do		190 59		
J. A. Kammerer	do		241 58		
Toronto Electrical Works	do		128 88		
Bennett & Wright	do		4,144 63		

J. H. Scott	do		30 83		
Withrow & Hillock	Covering for electric wires		446 62		
Conger Coal Co	Fuel		609 40		
M. Donnelly	do		146 70		
Consumers' Gas Co	Coke		77 15		
J. B. Smith & Sons	Lumber, etc		205 89		
E. Hirons	do		24 11		
Wm. Best & Co	Brick		32 00		
W. Maguire	Cement, etc		2,883 75		
W. Harrison	Sand and lime		238 50		
G. B. Meadows	do		19 50		
Ottawa Tolliver	Lime whiting		36 00		
Carroll, Vick & Co	Rubble stone		52 81		
Walter Page	do		5 63		
James Mahoney	Stone		713 63		
Oakley & Holmes	do		4 00		
Britnell & Co	Stone, gravel, etc		1,248 96		
F. McKeown	Flagging, curbing, etc		1,696 28		
Carroll & Vick	Stone flagging (cut)		1,783 81		
S. Hallett	Gravel		1 88		
J. Hurst	do		16 40		
J. Hearns	do		84 24		
Purdy, Mansell & Mashinter	Rubber hose, etc		52 00		
A. Jeffrey	Copperas		50		
Water Works Dept	Labor and material, laying mains		3,105 18		
Fire Alarm Dept	Fire alarm boxes, etc		149 60		
G. B. Meadows	Wire screens		9 00		
T. Crow	Bolts, etc		4 44		
Bertram & Co	Hardware, etc		1 70		
W. Rosebrugh & Sons	do		334 05		
Rice Lewis & Son	Tools, etc		51 11		
James Oag	Drills, chisels, etc		9 45		
Stewart & Wood	White lead, oil, etc		55 80		
S. Rogers & Co	Oil, etc		12 78		
N. L. Piper & Sons	Signal oil, etc		17 05		
St. Lawrence Foundry Co	Castings, etc		85 31		
Purdy, Mansell & Mashinter	Pipe, etc		51 30		
G. T. Railway Co	Freight charges on tools, etc		5 72		
A. Williams	Use of plow		1 50		
G. Forrest	Pails, lanterns, etc		10 70		
Pay lists	Men employed		8,059 28		
				44,770 65	
	ALGOMA DISTRICT.				
W. R. Gerrie	Building fence, etc., gaol, Sault Ste. Marie		63 00		
Joseph Martin	Pump for gaol, etc., Gore Bay		10 75		
King & Yorston	Furniture do do		71 45		
W. R. Grigley	Repairing fence do		27 16		
	Carried forward		172 36	382,001 86	2,619,970 99

PUBLIC BUILDINGS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Carried forward		172 36	382,001 86	2,619,970 99
	ALGOMA DISTRICT.—*Continued.*				
J. Fraser	Repairing fence for gaol, etc., Gore Bay		21 13		
A. Davidson	Repairing doors do do		3 50		
W. Buffey	Digging & stoning well do do		26 25		
				223 24	
	THUNDER BAY DISTRICT.				
Vigars Bros.	Lumber, gaol, etc., Port Arthur		7 20		
E. Riley	Plastering, etc do		71 50		
M. Dwyer & Co	Furniture do		10 00		
Matthews & Fraser	Carpets, etc. do		28 79		
King & Yorston	Matting, etc do		23 20		
R. McNab	Building fence, goal, Fort William.		20 00		
				160 69	
	MUSKOKA DISTRICT.				
James Craig	On account contract, lock-up, Bracebridge		1,350 00		
G. P. Buckley	Iron work, do		110 10		
J. C. Nelson	Repairing doors, do		3 00		
J. H. Copeland	Casing doors, do		20 00		
J. Hunt	Masonry, etc., do		9 28		
W. W. Kerisey	Furniture, do		11 00		
Sundry newspapers	Advertising for tenders, do		74 50		
W. C. McKenzie	Services as Clerk of Works, do		208 00		
do	Travelling expenses, do		65 80		
J. L. Fenn & Co	Stone, Registry Office, Bracebridge		7 50		
M. C. Drew	On account contract, lock-up, Huntsville		367 55		
F. Frances	Repairing fence, do		15 00		
G. Hunt, jr	Painting fence, do		10 00		
do	Calsomining, do		4 00		
J. Taylor	Sand, etc., do		11 00		
W. C. McKenzie	Travelling expenses, do		6 25		
				2,272 98	

PARRY SOUND DISTRICT.				
W. W. Wolton	Papering, etc., court room, Parry Sound		7 81	
W. G. Howell	Repairing chimney, do		7 00	
Logan & McAllister	do roofs, etc., do		40 00	
Anderson & Co	Furniture, etc., do		5 00	
King & Yorston	do and matting, do		42 30	
C. Farrer	Cartage, do		75	
M. C. Drew	On account contract furnace, lock-up, Burks' Falls		303 69	
do	Building woodshed, Parry Sound		75 00	
W. Maguire	Cement, do do		3 62	
W. C. McKenzie	Travelling expenses, do		9 45	
do	Services as Clerk of Works		108 00	
M. C. Drew	Paints and oils, lock-up, Maganetawan		14 16	
Adams & Broadbent	On account contract furniture, lock-up, French River		857 00	
Geo. Evans	Stove, etc., do		26 52	
W. C. McKenzie	Travelling expenses, do		57 65	
Sundry newspapers	Advertising for tenders, do		53 60	
W. C. McKenzie	Services as Clerk of Works, do		104 00	
				1,715 55
NIPISSING DISTRICT.				
Graham & Co	On account contract furnace, lock-up, etc., North Bay		225 75	
Purdy, Mansell & Mashinter	Registers, do		12 00	
Purvis Bros	Iron pipe, etc., do		33 60	
Murray Bros	Storm sash, etc., do		23 40	
W. C. McKenzie	Travelling expenses, do		12 55	
R. Burdette	On account contract, lock-up, Sudbury		4,600 00	
M. Lemieux	Building and repairing chimneys, etc., lock-up, Sudbury		60 00	
E. H. Wilson	Sundry repairs, do		9 00	
F. Cochrane	Stove, etc, do		8 90	
Sundry newspapers	Adertising for tenders, do		84 40	
W. C. McKenzie	Services as Clerk of Works do		212 00	
do	Travelling expenses do		110 00	
				5,391 60
RAINY RIVER DISTRICT.				
Ross, Hall & Brown	Lumber, lock-up, Rat Portage		15 07	
W. Oliver	Repairing platform, hardware, etc., lock-up, Rat Portage		31 34	
A. H. Gilham	Carpets, etc., do do		11 22	
G. P. Phillips & Bros	Ironware, etc., do do		5 80	
H. Elliott	Furniture, Registry Office, Rat Portage		17 50	
Kay Furniture Co	do do do		19 49	
The Hudson's Bay Co	Matting do do		8 85	
W. A. McLeod	Furnishings, do do		60	
Jacob Hose	do do do		66 67	
W. R. Gerrie	Carpentering, do do		1 00	
	Carried forward		177 54	391,765 92	2,619,970 99

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		177 54	391,765 92	2,619,970 99
	RAINY RIVER DISTRICT.—*Continued.*				
Sundry newspapers	Advertising, Registry Office, Rat Portage		3 00		
N. Mosher	Lumber, lock-up, Fort Francis		202 80		
Ross, Hall & Brown	do do		218 34		
G. D. Stinson	do do		2 40		
R. Mosher	Shingles, do		21 25		
G. Singleton	Cedar sticks do		18 60		
Western Lumber Co	Timber, do		93 00		
Butler & Holland	Windows, doors, etc., do		23 90		
Rice Lewis & Son	Padlocks, etc., do		26 40		
G. D. Stinson	Window bolts, do		40		
James Robertson & Co	Hardware, do		158 28		
Butler & Holland	Stone, lime, etc., do		48 30		
G. P. Phillips	Blacksmithing, do		75		
Steamer *Highland Maid*	Freight charges, do		70 87		
C. Lewis	do do		12 25		
J. H. McLaren	Travelling expenses, do		137 60		
do	Services as Clerk of Works, do		420 00		
Pay lists	Men employed, do		568 14		
				2,203 22	
	Total Public Buildings				393,969 14
	PUBLIC WORKS.				
	MAGANETAWAN RIVER IMPROVEMENT.				
J. Holbert	Timber, etc		4 00		
Knight Bros	Pike poles, etc		2 30		
W. Sharp	Wood		100 00		
W. McLachlan	do		2 50		
E. Woods	Tools, etc		5 95		
J. Makins	Castings, etc		11 20		
J. H. Helm	do		8 00		
St. Lawrence Foundry Co	do		43 50		
M. C. Drew	Iron, oil, etc		43 60		

McLennan & Co.	Dynamite, etc		43 35		
W. Hamilton Mfg. Co.	Forging for dredge		4 60		
A. Hoadley	Leather straps		75		
R. A. & J. Lamb	Supplies		72 95		
W. Ryan	do		81 57		
I. Menzies & Co.	do		145 70		
Mrs. J. Bell	do		7 40		
A. Fourn	do		3 25		
A. Kennedy	do		10 30		
J. O'Neill	do		2 50		
T. J. Carscadden	do		2 00		
H. Irwin	do		1 60		
W. Kirk	do		26 84		
G. McKnight	do		9 10		
J. Baillod	do		1 70		
A. Mills	do		2 33		
D. F. Burk	Board of men		7 15		
A. Fitzer	do		4 65		
A. Walton	Towing		1 75		
Muskoka Navigation Co.	do		53 10		
W. J. Gillespie	Teaming		3 50		
S. G. O'Grady	Travelling expenses		6 25		
A. Hoadley	do		11 95		
W. Edwards	do		13 90		
W. Barnes	do		25 40		
A. Ross	do		8 70		
A. Mills	do and disbursements		52 23		
George Forrest	do		2 25		
T. Walters	do		91 92		
G. N. W. Telegraph Co.	Messages		1 56		
G. T. Railway Co.	Freight charges		9 48		
Canadian Express Co.	Charges on diving apparatus		6 30		
W. M. Kennedy	Care of dredge and scow		30 00		
T. Sacret	Services and expenses laying up dredge and scow		10 50		
Pay lists	Men employed		1,836 83		
				2,814 41	
	PENINSULA CREEK IMPROVEMENT.				
J. Whiteside	Timber		10 73		
J. Milne & Son	Lumber		9 40		
H. S. May	Hardware, etc		20 46		
S. Snider	Tools		3 26		
H. S. May	Rope		1 86		
Thomas Ware	Stone		30 00		
T. Walters	Travelling expenses		14 95		
George Forrest	do and disbursements		9 45		
W. J. Casselman	Board of men		33 28		
J. Cook	do		6 50		
	Carried forward		139 89	2,814 41	3,013,940 13

PUBLIC WORKS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		139 89	2,814 41	3,013,940 13
	PENINSULA CREEK IMPROVEMENT.—*Continued.*				
B. Hill	Board of men		1 95		
D. Kernaghan	Livery hire		6 00		
G. F. March	Towing, etc		30 50		
A. Denton	do		6 00		
T. Sacret	Services removing logs		6 75		
R. Sacret	do do		6 00		
Pay lists	Men employed		151 13		
				348 22	
	BALSAM RIVER WORKS.				
J. A. Ellis	Timber		5 76		
R. Kennedy	Lumber		112 50		
J. Hurd	Spikes, rope, etc		6 83		
T. Robson	Bolts, washers, etc		18 57		
S. W. Metcalfe	Supplies		10 01		
J. C. Roy	do		1 60		
Hurley & Brady	do		104 87		
Mrs. W. Brockenshire	do		5 32		
McDougall & Brandon	do		4 11		
J. Begg	Livery hire		2 00		
G. Delurey	Travelling expenses and disbursements		5 45		
A. Ross	Disbursements		2 35		
T. Walters	Travelling expenses		5 00		
P. Grozill	do		1 30		
S. G. O'Grady	do		5 36		
E. R. Edwards	Teaming		4 00		
Pay lists	Men employed		697 13		
				992 16	
	GULL AND BURNT RIVER WORKS.				
Bertram & Co	Dynamite, etc		135 00		
J. Conway	Supplies		16 87		
A. Watson	do		19 98		

C. H. Gatchell	Teaming		4 50		
George Train	Rent of house for foreman		3 00		
G. Delurey	Travelling expenses		2 56		
A. Ross	do and disbursements		13 65		
T. Walters	do do		7 50		
G. T. Railway Co.	Charges		7 72		
Pay lists	Men employed		289 53		
				500 31	
	LANDING PIER, PORT ELGIN.				
Treasurer, Village Port Elgin	To aid in repairing public landing pier			750 00	
	NATION RIVER IMPROVEMENT.				
Treasurer, Stormont, Dundas and Glengarry	Aid in deepening and dredging			3,000 00	
	LOCKS, DAMS AND SWING BRIDGES.				
	LOCKMASTERS' SALARIES.				
W. Brockenshire	Services as Lockmaster, Balsam Lake	240 00			
J. Clarke	do do Lindsay Lock	345 60			
A. Denton	do do Mary's and Fairy Lakes	240 00			
A. Kennedy	do do Maganetawan	240 00			
P. M. Shannon	do do Port Darling	300 00			
P. Young	do do Young's Point	240 00			
J. Knoepfly	do Caretaker, Ah-Mic Lake dam	80 00			
T. Burgess	do do Bala works	300 00			
D. Galloway	do do Norland and Elliott Falls works	50 00			
A. S. Smith	do do Mary's Lake dam	100 00			
James Bayne	do do Deer Lake dam	360 00			
E. Cox	do Bridge-tender, Port Sandfield	100 00			
R. McCausland	do do South of Lindsay	188 20			
T. Walters	do Superintendent of locks, dams and bridges	1,117 30			
			3,901 10		
Thomas Stinson	Timber, etc	180 74			
Stephen Otto	do	218 36			
T. McGuinness	do	22 00			
C. Parkins	do	1 00			
W. Broadway	do	80 98			
J. F. Russell	do	60			
R. McDermott	do	2 00			
J. Knoepfly	do	10 00			
Tennant & Rankin	do	2 14			
J. Whiteside	do	2 40			
	Carried forward	520 22	3,901 10	8,405 10	3,013,940 13

PUBLIC WORKS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	520 22	3,901 10	8,405 10	3,013,940 13
	LOCKS, DAMS AND SWING BRIDGES.—*Continued.*				
H. Hobden	Timber, etc	18 20			
Sadler, Dundas & Co	do	840 31			
R. Kennedy	do	220 76			
T. Burgess	do	9 00			
C. Russell	do	8 75			
J. H. Delamere	do	2 25			
J. S. Wallace	do	5 14			
Utterson Lumber Co.	do	24 00			
A. S. Smith	do	46 43			
R. Dunsford	do	47 98			
R. Robinson	Sand and gravel	6 00			
A. Archer	Gravel	2 00			
A. B. H. Carl	Hardware, etc	48			
Robertson & Cliff	do	80			
J. C. Roy	do	5 75			
H. S. May	do	29 86			
R. Hurd	do	3 45			
P. Jushy	Spikes, etc	10 10			
S. Snyder	do	36 30			
J. Welch	do	20 25			
Rice Lewis & Son	Tools, etc	3 25			
J. F. Chester	do	1 40			
Bertram & Co	do	3 05			
McLennan & Co	do	191 89			
G. R. Massey	do	11 50			
A. Brennan	do	1 00			
A. Ladell	do	5 26			
W. Hanna & Co	Paints, oils, etc	12 84			
A. Kennedy	do	1 49			
J. G. Edwards	do	47 74			
M. C. Drew	do	14 16			
J. F. Young	do	32 69			
St. Lawrence Foundry Co.	Iron beams	70 20			
Toronto Engine Works	Girders	153 77			

W. Howe	Galvanized iron	75 05				
J. Makins	Castings, etc	607 31				
C. Croswell	do	3 45				
T. Burgess, sr	Dynamite	5 18				
W. A. Goodwin	Painting	13 20				
J. J. Turner	Tent, etc	8 25				
J. G. Edwards	do	28 88				
J. P. Ryley	Oar locks	1 00				
J. Berry	Repairing oars	1 25				
Toronto Rubber Co	Diving dress, etc	51 25				
J. C. Roy	Supplies	110 45				
C. Russell	do	10 92				
L. B. Dillman	do	2 25				
T. Godwin	do	5 62				
E. Noice	do	48 22				
M. Sweet	do	5 55				
Hurley & Brady	do	24 30				
W. Stemkrauss	do	90				
N. McPhaden	do	48				
C. S. Blackwell & Co	do	85				
J. Conway	do	4 65				
P. M. Shannon	do	10 53				
W. Brockenshire	do	37 60				
W. McCully	do	1 50				
R. O'Brien	Board of men	23 91				
J. Kyle	do	71 40				
Mrs. T. Sacret	do	8 84				
W. Terry	do	46 00				
C. Boswell	do	3 00				
Mrs. D. Jones	do	20 25				
W. J. Casselman	do	3 57				
J. Cook	do	12 60				
M. Simpson	do	24 15				
E. N. Davidson	do	21 50				
Mrs. Jones	do	36 45				
A. Fitzer	do	6 00				
T. Currie	do	11 56				
D. Bowen	do	3 65				
W. Welsh	do	10 20				
T. Graham	do	12 60				
J. Twomley, jr	do	3 60				
S. G. O'Grady	Travelling expenses	74 06				
W. H. Walsh	do	5 75				
T. Killaby	do	3 05				
W. Edwards	do	5 41				
E. Bush	do	4 40				
W. Barnes	do	2 15				
P. Grozell	do	4 00				
W. Brockenshire	do and disbursements	5 50				
	Carried forward	3,890 51	3,901 10	8,405 10	3,013,940 13	

PUBLIC WORKS.—*Concluded.*—COLONIZATION ROADS.

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	3,890 51	3,901 10	8,405 10	3,013,940 13
	LOCKS, DAMS AND SWING BRIDGES.—*Continued.*				
E. Austin	Travelling expenses and disbursements	8 30			
C. Way	do do	21 55			
G. W. Rose	do do	169 31			
A. Ross	do do	88 72			
G. Delurey	do do	34 55			
G. Forrest	do do	57 76			
W. H. Walsh	do do	10 20			
T. Walters	do do	149 35			
D. J. Hartle	do do	10 19			
R. Scarlett	Use of jack screws	1 50			
Freemont, Crandell & Co	Towing	10 00			
E. Shay	Teaming	2 50			
J. Paull	do	2 75			
B. Gunigle	do	34 25			
D. J. Hartle	do	11 00			
D. F. Burke	do	10 00			
J. Kearns	do	2 50			
D. Galloway	do	12 00			
C. Way	do	10 25			
M. Gatchell	do	3 00			
N. Zenfeldt	do	3 80			
W. Hoadley	do	1 00			
C. D. Barr	Printing *re* tenders	21 75			
R. S. Porter	Stationery	7 85			
G. N. W. Telegraph Co	Messages	7 48			
Lindsay Post Office	Rent of box	1 50			
Canadian Express Co	Charges	22 00			
G. T. Railway Co	Freight charges	23 31			
D. J. Hartle	do	87			
Steamer "Esturion"	do	1 00			
Pay lists	Men employed	4,658 92			
			9,289 67		
	SURVEYS, INSPECTIONS, ARBITRATIONS AND AWARDS.			13,190 77	
James, Bayne	Services and expenses inspecting Deer Lake dam	.....	10 00		
R. McCallum	Travelling expenses	.....	64 68		

C. G. Horetzky	do				16 40	
T. Walters	do	and disbursements			137 90	
						228 98
	Total Public Works					21,824 85
		COLONIZATION ROADS.				
Wallace Mallory	On account of	work and supplies—	Abinger and Miller T. L. Road			498 13
A. P. Wickware	do	do	Addington Road		848 00	
	do	do	do		501 06	
						1,349 06
Wm. Lane	do	do	Ah-mic Harbour and Burk's Falls Road			393 67
Jno. Crosswell	do	do	Alice, 10 and 11 Con. Road			200 00
Jno. Goldt	do	do	Alsace Road			403 94
Phil. Straus	do	do	Anstruther Road (balance of 1891)			11 23
F. Elmhirst	do	do	Arden Road			500 00
Jas. Tallon	do	do	Armour Road		355 24	
Hector Phillips	do	do	do		364 56	
I. Watts						719 80
A. Hepburn	do	do	Baysville Bridge		1,210 00	
Sundry persons	do	supplies	do		89 11	
						1,299 11
Geo. Cain	do	work and supplies—	Batchawaning Road			755 62
L. Simpson	do	do	Beaver Lake Road			1,350 00
J. B. McWilliams	do	do	Belmont Road			410 62
Geo. Savage	do	do	Bethune, 10 and 11 S. L. Road			499 16
C. Coben	do	do	Bobcaygeon Road			774 68
C. Legris	do	do	Bonfield, 4 and 5 Con. Road			480 00
Denis Boivan	do	do	Bonfield, 15 and 16 S. L. Road			250 01
F. Elmhirst	do	do	Booth Road (balance of 1891)		13 10	
do	do	do	do		407 49	
						420 59
Martin Rosch	do	do	Brennan's Creek Bridge			100 00
J. T. O'Neill	do	do	Bromley Proof Line Road			152 37
Alex. McPhail	do	do	Bruce Mines and Desert Lake Road			598 04
Hugh Taylor	do	do	Brunel Road			309 00
Robt. Shaw	do	do	Buckhorn Road			1,198 29
M. E. Sanderson	do	do	Buckhorn and Burleigh Road			173 25
F. Elmhirst	do	do	Burleigh Road (balance of 1891)		14 50	
do	do	do	do		473 60	
						488 10
		Carried forward				13,334 67 3,035,764 98

COLONIZATION ROADS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			13,334 67	3,035,764 98
	COLONIZATION ROADS.—*Continued.*				
I. Champagne	On account of work and supplies, Caldwell Road (balance of 1891)		36 00		
do	do do do		672 83		
Sundry persons	do supplies do		97 01		
M. Menard	do do do (balance of 1891)		20 00		
				825 84	
M. Nelan	do do Callender and North Bay			690 00	
Allan Cameron	do do Calvin, 4th Con. Road			301 06	
Samuel Viverais	do do Cameron and Papineau S. L. Road			502 17	
J. Campbell, sr	do do Carlow Bridge			787 66	
Wm. Dunbar	do do Cavendish Roads			608 21	
J. Armstrong	do do Chaffey, 12 Con. Road			378 54	
F. Elmhirst	do do Chandos Road (balance of 1891)			13 12	
W. Carmichael	do do Chisholm, 10 and 11 Con. Road			497 05	
Hiram Keech	do do Clare River Bridge			800 00	
J. Breen	do do Cobden Road			775 84	
Robt. Manary	do do Cockburn Island Road			499 67	
Isaac Hall	do do Coffin Bridge and Road			502 09	
R. VanKoughnet	do do Conger Road			289 55	
Geo. Campbell	do do Dalton, 25 and 26 S. L. Road			395 25	
Thos. O'Connor	do do Devil's Lake Bridge			400 00	
A. McFarlane	do do Dorion Road			1,268 51	
F. Harvey	do do Dorset Road			50 00	
M. McGrath	do do Douglas and Clontarf			500 00	
J. B. McWilliams	do do Dummer, 9th Con. Road			207 00	
B. Wickett	do do Eagle Lake Bridge			850 00	
Peter Thomson	do do Eau Claire Road and Bridg		1,310 04		
Sundry persons	do supplies do do		87 26		
				1,397 30	
Jno. Boyd	do work and supplies—Echo River Bridge			991 14	
Henry Meves	do do Fraser 5 and 6 S. L. Road			200 50	
C. Coben	do do Galway and Cavendish Roads			859 85	
C. O'Connor	do do Gannon's Narrows Road			102 30	
C. K. Arthurs	do do German Road			400 00	
Jno. Boyd	do do Goulais River Bridge		3,108 18		
Sundry persons	do supplies do		424 64		
				3,532 82	

J. D. McLennan	do	work and supplies	Grand Portage Road		814 29	
A. Luttrell	do	do	Grassey River Road (balance of 1891)		114 56	
P. McNamara	do	do	Gratton and South Algoma Road		400 00	
M. McGregor	do	do	Great Northern Road		950 00	
B. Kelly	do	do	Hagarty and Brudenel Road		406 82	
Jos. Burchatt	do	do	do 5 and 6 Con. Road	400 00		
Charles Kitt	do	do	do do	300 00		
					700 00	
D. Sullivan	do	do	do 15 and 16 S. L. Road		301 93	
D. Kavanagh	do	do	Hastings Road	796 40		
J. Fitzgerald	do	do	do	830 81		
					1,627 21	
A. Hughson	do	do	Honora Bay Road		992 44	
D. Moriarty	do	do	Hyde's Chute and Sanson's Road		569 61	
S. Spears	do	do	Indian Peninsula Road (balance 1891)	7 47		
do	do	do	do	600 00		
Geo. Hawes	do	do	do	425 00		
Ed. Barley	do	do	do	202 02		
Jas. Bickel	do	do	do	503 90		
					1,738 39	
J. M. Kennedy	do	do	Indian River Bridge		202 32	
C. F. Aylesworth	Inspection			1,492 05		
M. Lounsbury	do			1,479 85		
H. Smith	do			52 60		
J. D. Simpson	do			1,457 05		
Jno. Boyd	do	(account of 1891)		50 00		
do	do	(do 1892)		1,380 00		
M. Dwyer	do			567 10		
					6,478 65	
D. McLachlin	On account of	work and supplies	Iron Bridge		100 35	
J. Duke	do	do	Joly Road		527 25	
B. Wickett	do	do	Joseph River Bridge		121 56	
A. Hepburn	do	do	Kaministiquia Bridge		414 04	
B. Wickett	do	do	Katrine Bridge (balance of 1890)		10 03	
August Jahn	do	do	Lake Clear and Lynedoch Road		504 45	
J. E. Coyne	do	do	Larchwood Road	623 65		
Sundry persons	do	supplies	do	106 63		
F. Sinclair	do	do	do	742 60		
					1,472 88	
R. Barrett	do	work and supplies	Laurier Road		499 50	
Jas. O. Daly	do	do	Loughboro' Lake Bridge		200 00	
Jno. Armstrong	do	do	Lorimer Lake Road		66 96	
Thos. Bromley	do	do	Machar 5 and 6 S. L. Road		508 83	
John Armstrong	do	do	McKellar 10 and 11 Con. Road		488 44	
M. Dwyer	do	do	McKenzie Creek Bridge		150 02	
Xavier Pilon	do	do	McKim 4th Con. Road		304 50	
S. R. McKowen	do	do	Manitoulin Island Roads		300 45	
M. O'Connor	do	do	Mattawa Road		480 00	
P. Sunstrum	do	do	do and Callender Road		799 14	
			Carried forward		54,204 76	3,035,764 98

COLONIZATION ROADS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			54,204 76	3,035,764 98
	COLONIZATION ROADS.—*Continued.*				
F. Elmhirst	On account of work and supplies—Methuen Road (balance 1891)		20 03		
do	do do do		330 00		
				350 03	
Jno. Thompson	do do Mills and Wilson			700 00	
D. Kavanagh	do do Mississippi Road (balance 1891)			19 62	
Wm. Donaldson	do do do Junction Bridge and Road			412 89	
Matthew Price	do do Mountain Grove Road			397 13	
C. Dwyer	do do Mud Lake and Killaloe Road		511 19		
P. Stack	do do do do		250 00		
				761 19	
D. Kavanagh	do do Murchison Bridge (balance of 1891)			115 89	
J. J. Murphy	do do Muskoka Road		382 46		
J. Bommacombe	do do do		500 28		
David Tennant	do do do		479 27		
Sundry persons	do supplies do		44 75		
				1,406 76	
G. Robson	do work and supplies—Muskoka and Bobcaygeon Road			810 90	
Thos. Burgess	do do Musquosh Road			252 70	
Jno. Bumstead	do do New Jerusalem Road		455 24		
Sundry persons	do supplies do		44 75		
				499 99	
F. Train	do work and supplies—New Carlow Bridge			498 98	
Ed. Fisher	do do Nipissing Road			504 62	
Robt. Shaw	do do Nogey's Creek Road			313 67	
D. F. McDonald	do do Northern Road			500 00	
do	do do Northwest Road			75 00	
Jno. Workman	do do North Bay and Nipissing Junct'n Road			400 32	
John McLeod	do do do Temiscamingue Road			601 00	
B. Gratton	do do do Widdifield Road			525 77	
Robt. Shaw	do do North Harvey Road			763 82	
A. Savard	do do Nosbonsing Road		916 40		
Sundry persons	do supplies do		84 20		
				1,000 60	
J. A. Levesque	do work and supplies—Nosbonsing and Southeast Bay Road			725 83	
B. Wickett	do do Oakley Bridge		860 00		
Sundry persons	do supplies do		89 93		
				949 93	

Robt. Keppy	do	work and supplies	Old Man's Creek Bridge		206 33	
Wm. Colton	do	do	Opeongo Road	238 68		
Jas. Quinn	do	do	do	278 43		
Thos. Culhane	do	do	do	404 66		
T. Holly	do	do	do	321 82		
					1,303 59	
W. N. Murphy	do	do	Ottawa River & Mattawa 13 & 14 Con. Rd.		805 58	
A. McFarlane	do	do	Ouimet and Black Bay (balance of 1891)		47 18	
Jno. Wingle	do	do	Palmer Rapids and Snake Creek Road		740 15	
Jas. Gilligan	do	do	Papineau 12 and 13 Con. Road		499 97	
Thos. McGown	do	do	Parry Sound Road		490 42	
A. Forrest	do	do	Patton Road		802 11	
B. Helferty	do	do	Peterson Branch Road		400 00	
Fred. Schwitzer	do	do	Petewawa 15 and 16 S. L. Road		200 00	
St. Lawrence Foundry	do	do	Pile hammer		50 00	
Ed. Trean	do	do	Pine River Road (balance 1891)		29 51	
A. Hepburn	do	do	Point de Menron Bridge		397 14	
Charles Varin	do	do	Powassan and Callender Road	874 66		
Sundry persons	do	supplies	do do	125 13		
					999 79	
Langton Carr	do	work and supplies	Pringle Road		513 74	
Wm. Dunbar	do	do	Queen's Line Road		322 49	
M. Dwyer	do	do	Rabbit Mountain and White Fish Lake Road		1,041 38	
J. A. Tierney	do	do	Rainy River Road (balance of 1891)	32 83		
R. Smyth	do	do	do	325 00		
M. Dwyer	do	do	Rainy River District Roads	5,917 09		
					6,274 92	
D. L. Mather	do	do	Rainy River Trail Road		40 00	
F. Campbell	do	do	Rat Portage and Keewatin Road (balance of 1891)		19 42	
H. F. Holmes	do	do	Rat Portage and Keewatin Road		598 14	
F. Campbell	do	do	Rat Portage and Rainy River Road (balance of 1891)		14 98	
Isaac Hortie	do	do	Rayside Road		508 90	
C. Coben	do	do	Reid Road		219 23	
J. B. McWilliams	do	do	Round Lake Road		208 06	
Robt. Shaw	do	do	Sandy Lake Road		113 28	
Wm. Adams	do	do	Sequin River Bridge		73 15	
B. Wickett	do	do	Shawanaga and Naiscoodtyinge Bridge		21 40	
Wm. Adams	do	do	Simpson Bridge		700 00	
Thos. Byrne	do	do	Somerville Bridge		125 08	
Jno. G. Quast	do	do	South Algona Bridge		402 00	
Thos. Halliday	do	do	South Falls Bridge		341 97	
B. Wickett	do	do	South River Bridge	500 00		
Sundry persons	do	supplies	do do	44 58		
					544 58	
			Carried forward		85,845 89	3,035,764 98

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			85,845 89	3,035,764 98
	COLONIZATION ROADS.—*Continued.*				
Sundry persons	On account of supplies—Spanish River Road		125 13		
Wm. Thompson	do work and supplies do		835 94		
				961 07	
Robt. Briscoe	do do Stafford Road			508 80	
Geo. Copeland	do do Stisted Road			267 32	
W. H. Reynolds	do do Stone Dam and Desert Lake Road			808 66	
J. B. McWilliams	do do Stony Lake Road			106 75	
Wm. Lang	do do Strong Township Roads		33 98		
F. Trudgen	do do do do		550 09		
Thos. McGee	do do do do		310 25		
				894 32	
Charles Franch	do do Sturgeon Falls Road			480 00	
Thos. Gallagher	do do do River Road (balance of 1891)		39 04		
do	do do do do		1,000 09		
				1,039 13	
E. Belanger	do do Sudbury Road			791 35	
Jno. Workman	do do do and Blezard Road			658 40	
F. X. Gervais	do do do and Neelon Road		400 00		
P. McGregor	do do do do		500 00		
				900 00	
F. A. Noble	do do do and Whitefish Lake Road			500 00	
O. Hinds	do do Ten Mile Point and Sanfield and West Bay Road			327 54	
F. Baker	do do Thessalon and Bright Road			198 08	
L. Whalen	do do Trafford and Tamworth Road			394 77	
R. B. Jessop	do do Trout Lake Road			600 00	
Thos. Chalmers	do do Utterson (Floating Bridge) Road			640 00	
Peter Thomson	do do Veuve River Bridge			950 00	
do	do do Wahanapitae Bridge (balance 1891)		38 18		
do	do do do		1,780 64		
Sundry persons	do supplies do		287 31		
				2,106 13	
do	do work and supplies—Webbwood Road		134 38		
Jno. Workman	do do do		904 09		
				1,038 47	
M. Corkory	do do Westphalia Road			300 22	

Thos. O'Connor	do	do	West Rideau Lake Bridge			590 51	
Jno. Boyd	do	do	White River Bridge			500 00	
Jno. Workman	do	do	Whitson Creek Bridge			273 08	
Adam Millar	do	do	Wilberforce and North Algona T.L. Road			399 75	
August Newman	do	do	do 20 and 21 S. L. Road			199 55	
C. Roberts	do	do	Wisawasa Road			867 07	
D. Kavanagh	do	do	York River Bridge			508 53	
			Total Colonization Roads				103,655 39

NOTE.—Supplies were furnished by "sundry persons" as follows:—

Bertram & Co	$762 27
H. P. Eckhardt & Co	112 55
Wm. Ryan	795 05
J. W. Lang & Co	114 90
St. Lawrence Foundry Co	50 00

CROWN LANDS EXPENDITURE.

BOARD OF SURVEYORS.

P. S. Gibson	Services as Examiner		80 00		
A. Niven	do		80 00		
Professor Chapman	do		10 00		
Villiers Sankey	do		20 00		
M. J. Butler	do		10 00		
M. Gaviller	do		10 00		
R. Coad	do		25 00		
A. J. Van Nostrand	do		45 00		
G. B. Kirkpatrick	Services as Secretary		70 00		
				350 00	

AGENTS' SALARIES, COMMISSIONS AND DISBURSEMENTS.

Anderson, D	Salary and disbursements		504 67		
Best, S. G	do		515 00		
Brown, C. P.	do		77 40		
Campbell, P. C	do		1,917 30		
Cockburn, J. D	do		517 47		
Campbell, A	do		150 00		
Dawson, G. W	do		206 70		
Dill, J. W	do		310 91		
Fielding, W	do		500 00		
Gilligan, B. J.	do		500 00		
		Carried forward	5,199 45	350 00	3,139,420 37

CROWN LANDS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		5,199 45	350 00	3,139,420 37
	AGENTS' SALARIES, COMMISSIONS AND DISBURSEMENTS.—*Continued.*				
Hamilton, G	Salary and disbursements		209 54		
Handy, E	do		515 62		
Holland, C. J	do		21 93		
Kennedy, J	do		4 14		
Kirk, W	do		204 45		
Macdonald, D. F	do		1,960 59		
Mackay, T	do		502 40		
MacPherson, R	do		500 00		
McDonald, D. G	do		500 00		
McWilliams, J. B	do		2,373 20		
Margach, W	do		2,437 45		
Munro, H	do		1,350 00		
Marsh, R. J. F	do		214 50		
Nichols, W. L	do		510 30		
Ruttan, J. F	do		250 00		
Reeves, J	do		500 00		
Ryan, T. J	do		511 75		
Soper, M. L	do		36 00		
Scarle[illegible], J. S	do		517 60		
Stewart, C. R	do		512 33		
Stewart, J	do		400 00		
Tait, J. R	do		507 67		
Turner, W	do		47 67		
Whelan, J	do		502 31		
Wilson, W	do		200 00		
J. J. Little	Services as Fishery Overseer, 1891-2		50 00		
J. H. Willmott	do do do		50 00		
F. J. Moor	do do		100 00		
N. Clar'k	do do		50 00		
D. Bole	do do		16 68		
S. R. McEwen	do do		50 00		
S. A. Huntington	do do		37 32		
B. McDermott	do do		50 00		
R. R. Smith	do do		50 00		
P. McCann	do do		10 00		

J. A. Johnston	do	do		250 00		
J. Emmons	do	do		100 00		
W. McKirdy	do	do		50 00		
R. R. Smith	Disbursements *re* fisheries			3 00		
F. J. Moor	do			34 63		
J. H. Willmott	do			40 03		
J. M. Ferris	Inspection, Seymour			2 50		
F. E. Coombe	do	Kincardine		4 00		
J. J. Hamilton	do	Finch		6 00		
P. McSherry	do	Kirkpatrick		91 00		
P. M. Shannon	do	Carling		2 00		
W. P. Christie	do	Medora & Wood		75 00		
J. W. Dill	do	Draper		1 00		
J. D. Cockburn	do	Kirkpatrick		7 45		
E. Garrow	do	Vankoughnet		211 50		
P. C. Christie	do	Hamilton		30 00		
J. B. McWilliams	do	Ratter		21 80		
J. R. Graham	do	Fenelon Falls		18 25		
E. Handy	do	Armour		1 00		
W. P. Christie	do	Hamilton		31 70		
W. H. Carpenter	do	Rainy River		150 00		
T. J. Ryan	do	Balfour		2 00		
W. H. Carpenter	do	Crozier, etc		66 90		
W. Kirk	do	Medora & Watt		13 85		
D. Tassie	Services as timber agent, Montreal			100 00		
F. Yeigh	Services, inspection C. L. Agencies			150 00		
W. Galbraith	Survey, description and plan, Watt			18 00		
W. Margach	Expenditure *re* exploration Rainy river			300 00		
W. Margach	do	Thunder Bay		200 00		
Geo. Kennedy	Travelling expenses			40 00		
Aubrey White	do			200 00		
C. S. Jones	do			76 03		
Hon. A. S. Hardy	do			91 00		
T. W. Gibson	do			10 15		
F. Yeigh	do			57 05		
T. C. Taylor	do			30 00		
					23,438 74	
	FOREST RANGING AND INSPECTION TIMBER LANDS.					
Brady, J	Services and disbursements			841 00		
Bremner, J. L	do			557 30		
Cunningham, J	do			642 00		
Campbell, P. C	do			219 33		
Christie, W. P	do			35 35		
Fraser, D	do			394 00		
Garrow, E	do			641 33		
Gardiner, J	do			788 55		
Gordon, T	do			100 00		
Halliday, J	do			785 00		
	Carried forward			5 003 86	23,788 74	3,139,420 37

CROWN LANDS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		5,003 86	23,788 74	3,139,420 37
	FOREST RANGING, ETC.—*Continued.*				
Halliday, F	Salary and Disbursements		1,727 43		
Henderson, C	do		1,205 15		
Harris, J. L	do		227 00		
Johnson, S. M	do		1,691 28		
Kennedy, J	do		1,208 38		
Ludgate, T	do		1,669 90		
Moore, D. H	do		1,264 25		
McSherry, P	do		90 00		
McCogherty, P	do		1,135 10		
McGown, W	do		1,113 18		
McGown, T	do		691 71		
Paget, G	do		1,490 77		
Regan, J	do		1,089 66		
Russell, W	do		1,604 24		
Robinson, W	do		818 10		
Ross, A	do		225 88		
Smith, J. W	do		1,482 05		
Smith, A. C	do		65 66		
Sullivan, J	do		1,025 00		
Sinclair, F	do		718 95		
Turgeon, J. B	do		630 00		
White, J. B	do		805 00		
Wickware, P. A	do		94 50		
T. Walters	Disbursements *re* Pigeon River Improvement		7 85		
				27,084 90	
	FIRE RANGING.				
Austin, C	Services and disbursements		144 00		
Aussant, T	do		240 25		
Blanchett, O	do		240 00		
Ball, J. H	do		298 00		
Barclay, G	do		262 00		

Bradley, H	do			92 00		
Brenner, W	do			126 00		
Brannan, S	do			84 00		
Bowland, J. M	do			460 75		
Boland, A. J	do			236 00		
Bartlett, G. W	do			288 75		
Bromley, T	do			1,535 27		
Bruce, G	do			254 00		
Brooks, E. J	do			4 00		
Britton, L. P	do			12 00		
Colville, M	do			92 50		
Crawford, D	do			262 00		
Cochrane, J	do			704 75		
Conway, James	do			210 00		
Coglan, J	do			663 00		
Coghlan, T	do			262 00		
Cody, L	do			182 00		
Carter, R. C	do			250 00		
Dupuis, L	do			212 00		
Dwyer, J	do			262 00		
Dufond, Ignace	do			262 00		
Dunn, P	do			1,065 60		
Driver, Joseph	do			258 00		
Elmhirst, W	do			302 50		
Elconce, E	do			216 00		
Fenton, J. E	do			216 00		
Gallagher, J	do			258 00		
Gongeon, A	do			532 00		
Grawbarger	do			472 00		
Gow, J	do			104 00		
Gilroy, S	do			210 00		
Hadley, J. J	do			26 00		
Headrick, W	do			269 50		
Heickson, A. H	do			220 00		
Henderson, J	do			72 00		
Hillis, J	do			310 25		
Higgins, J	do			210 00		
Humphrey, T. W	do			196 00		
Harris, J	do			262 00		
Haley, C	do			545 00		
Inwood, A	do			152 00		
Johnson, R. W	do			262 00		
Johnson, E	do			396 00		
Johnston, W	do			84 00		
Kirby, T	do			198 00		
Latour, F	do			262 00		
Lawson, A	do			91 50		
McEwan, W	do			72 00		
McCounce H				262 51		
		Carried forward		15,164 13	50,873 64	3,139,420 37

CROWN LANDS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		15,164 13	50,873 64	3,139,420 37
	FIRE RANGING.—*Continued.*				
McGown, W	Services and disbursements		24 00		
McGuey, D	do		1,180 03		
McDonell, A	do		963 55		
McCormack, J. C	do		131 00		
McIntyre, W	do		390 09		
McDonald, R	do		244 00		
McCarthy, J	do		408 30		
McGuire, J. F	do		262 00		
McDermott, P	do		236 00		
McDonald, J. W	do		274 00		
McNabb, W. C	do		472 00		
McNeill, A	do		256 38		
McBrien, R	do		260 00		
McDougall, D	do		254 00		
McCreight, J	do		246 00		
McKay, A	do		86 25		
McFarlane, J	do		300 52		
Mackey, W. C	do		58 00		
McKay, W. G	do		936 75		
Maves, W	do		80 00		
Moore, J	do		34 00		
Maguire, A. H	do		54 00		
Mitchell, J. C	do		154 00		
Martin, A. R	do		157 50		
May, M	do		194 00		
Murphy, J	do		564 63		
Miller, M	do		107 50		
Nevers, C	do		212 00		
Oran, J	do		524 00		
O'Neill, H. J	do		314 00		
O'Grady, T. L	do		262 00		
Porter, James	do		50 00		
Petras, J. C	do		210 00		
Prince, A	do		524 00		
Patterson, J	do		210 00		
Plourde, C	do		415 00		

Richards, G	do			260 00	
Smith, A. C	do			15 00	
Stable, D.	do			76 00	
Scantlin, J	do			447 87	
Sage, N	do			96 00	
Streatfield, L. C	do			140 00	
Sheehan, P. F	do			214 06	
Shiels, J. A	do			159 75	
Smith, G. O	do			472 00	
Sheehan, P. F	do			232 00	
Skuce, T	do			1,142 59	
Thomas, R	do			306 54	
Tough, J	do			220 00	
Tramblay, O	do			260 00	
Thivierge, X	do			262 00	
Thaxter, R	do			252 00	
Walsh, I	do			293 25	
Wilson, John	do			157 50	
Willig, J	do			24 00	
Willett, E	do			208 00	
Young, W	do			258 00	
VanKoughnet, J	do			56 25	
Vannier, X	do			210 00	
				31,976 38	
		Less refunds by owners of timber		4,073 83	
					27,902 55
		CULLERS' ACT.			
S. M. Johnson	Services and expenses as Examiner			23 85	
E. Garrow	do			28 95	
W. P. Christie	do			44 50	
B. J. Gilligan	do			12 00	
W. R. Aylsworth	do			13 10	
J. Brady	do			27 25	
James Dollar	do			31 75	
D. H. Moore	do			24 35	
E. T. Marsh	do			55 95	
W. Russell	do			35 20	
P. McCogherty	do			67 15	
J. Kennedy	do			40 40	
W. B. McKendry	do			43 20	
J. B. Tait	do			54 00	
T. McGown	do			74 20	
T. Ludgate	do			39 15	
F. Halliday	do			32 50	
S. G. Ritter	do			31 35	
J. W. Smith	do			13 95	
C. Henderson				50 45	
		Carried forward		743 25	78,776 19	3,139,420 37

CROWN LANDS EXPENDITURE.—*Concluded.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		743 25	78,776 19	3,139,420 37
	CULLERS' ACT.—*Continued.*				
J. C. Kennedy	Services *re* examinations		16 00		
T. Ludgate	do		8 00		
D. F. McDonald	Disbursements *re* examinations		89 20		
Sundry newspapers	Advertising do		77 85		
				934 30	
	CROWN TIMBER AGENCY, QUEBEC.				
J. McKay	Services		75 00		
B. Nicholson	Services and disbursements		1,754 42		
Thomas Harney	Services as Messenger		318 72		
Inland Revenue Dept	Rent of offices		125 00		
				2,273 14	
	CROWN TIMBER AGENCY, OTTAWA.				
W. J. McDonald	Services and disbursements		125 00		
E. J. Darby	do		1,635 22		
S. C. Larose	Services as Clerk		850 00		
				2,610 22	
	SURVEYS.				
J. W. Fitzgerald	Survey of townships		4,626 47		
B. J. Saunders	do		2,814 28		
H. R. McEvcy	do		580 44		
J. S. Laird	do		609 11		
T. B. Speight	do		1,599 08		
D. L. Sanderson	do		893 48		
Jas. Warrin	do		1,621 62		
E. Stewart	do		3,205 72		
Davis & Griffin	do		1,600 00		
A. Baird	do		1,628 83		
H. B. Proudfoot	do		1,800 00		
W. B. Burke	do		1,983 59		
L. Bolton	do		1,640 45		

E. J. Ramboth	do		505 11		
D. Beatty	Survey of timber berths		1,641 26		
W. Galbraith	do		1,298 38		
J. F. Whitson	do		45 70		
E. Seager	do		134 50		
Jas. Dickson	Inspection of surveys		1,244 91		
A. Niven	Surveying boundary lines, etc		5,110 98		
E. Stewart	do		31 85		
J. McAree	do		1,700 00		
T. B. Speight	do		96 00		
H. B. Proudfoot	Survey town plot R. R. district		244 01		
do	Survey Thunder Bay district		2,435 11		
W. Galbraith	Services and expenses *re* survey block of land, Finlayson		61 75		
E. Seager	Traverse of Coney Island, etc., Lake of the Woods		110 20		
do	Survey of part of Tunnel Island		66 50		
M. J. Butler	Expenses *re* Kennebec		22 50		
S. Malcolm	Valuing lots Township of Harwick		285 25		
E. Seager	Iron stakes for survey of Tunnel Island		4 32		
Toronto Lithograph Co	Lithographing maps, etc		451 50		
Copp Clark Co	do		1,582 35		
J. F. Whitson	Tracing maps, etc		1,200 00		
F. L. Foster	do		5 00		
G. B. Kirkpatrick	Travelling expenses, investigation of claims, Rat Portage, etc		293 50		
J. F. Whitson	Travelling expenses *re* survey timber limit, Lake Pogamasing		50 00		
				43,226 75	
	MISCELLANEOUS.				
Reed & Ryan	Fees as auctioneers, *re* sale of timber berths		700 00		
Montreal Bill Posting Co	Posting bills do		3 00		
Sundry newspapers	Advertising do		3,310 20		
				4,043 20	
	Total Charges Crown Lands				131,863 80
	Carried forward				3,271,284 17

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward				3,271,284 17
	REFUNDS.				
	EDUCATION.				
Bunker, T. G	Refund Subscription Superannuated Fund		3 00		
Birch, P. J	do		9 00		
Cook, W. R	do		38 00		
Cairns, R. H	do		28 00		
Campbell, A. D	do		19 48		
Digman, A	do		7 00		
Eacrett, R	do		19 60		
Foy, T. J	do		6 00		
Glendenning, H	do		22 00		
Gowan, T. J	do		6 00		
Leitch, D. L	do		57 50		
McAlpin, D	do		14 00		
McKinnon, J	do		131 27		
McKinnon, N	do		147 61		
McEwan, H. J	do		6 00		
Perry, R. S	do		228 00		
Reesor, F. K	do		27 00		
Thompson, J. R	do		13 00		
Tremills, I. J	do		4 06		
Whittington, R	do		1 00		
				786 86	
	CROWN LANDS.				
C. P. Brown	Refund on land, Aweres		200 00		
J. B. Deacon	do Bedford		30 00		
J. F. Taylor	do Bright		403 50		
John Lean	do Burleigh		15 20		
W. H. Comstock	do Clarendon		2,451 00		
Kingsmill, Symons & Co	do Crooks		740 00		
J. C. Smith	do Coffin		25 00		
W. J. Muller	do do		22 00		

L. Lansing	do	Caldwell		3 00		
A. Ferrin	do	Cavendish		5 00		
Omer Roy	do	Craig		40 12		
M. Enright	do	do		80 00		
J. Wilson	do	Calvin		9 00		
W. Mackey	do	do		15 00		
P. Brothers	do	Chaffey		11 50		
S. A. Willis	do	Carling		68 00		
Holmes, Gregory & Lamport	do	Dowling		168 00		
S. Chouinard	do	Denison		80 12		
J. S. Turnbull	do	Dorion		72 50		
J. Troup	do	Egremont		80 00		
W. Sage	do	Flos		37 10		
W. L. Nichols	do	Galbraith		305 00		
W. J. Ross	do	Gillies		10 00		
H. Smith	do	Galway		5 00		
W. R. Meubery	do	Herchell		49 00		
J. Middleton	do	Harvey		25 00		
Nelson Benson	do	island, Rainy River		22 00		
J. Smith	do	islands, Rat Portage Bay		10 00		
J. M. Savage	do	do		17 50		
C. W. Chadwick	do	island, Lake of Woods		20 25		
I. Gagne	do	do		15 00		
P. L'Heureux	do	islands		15 00		
G. N. Parkes	do	land, Kennebec		58 00		
Chown & Cunningham	do	do		200 00		
L. D. Williams	do	do		154 50		
W. Patterson	do	do		25 00		
J. W. Miller	do	do		105 35		
A. Sanderson	do	do		12 00		
D. Osborne	do	do		45 66		
J. Johnston	do	Kinloss		207 60		
E. Newall	do	Keewatin		180 00		
R. L'Heureux	do	do		10 00		
J. Aylsworth	do	Kaladar		35 00		
J. Kennedy	do	do		108 15		
J. Brohm	do	Lutterworth		20 00		
C. McKinnon	do	Luther		16 90		
C. E. Brewster	do	Libster		188 25		
F. N. Gibbs	do	do		322 50		
J. Fluker	do	Laurier		3 00		
F. Cayley	do	Merritt		1,043 20		
J. A. Kennedy	do	Monmouth		51 60		
W. J. McKenzie	do	McKinnn		929 00		
J. Potter	do	do		100 00		
E. M. Cathro	do	Neelon		40 00		
H. B. Smith	do	Owen Sound		630 00		
W. J. Hasking	do	Paipoonge		89 50		
Kingsmill, Symons & Co	do	do		325 00		
		Carried forward		9,950 00	786 86	3,271,284 17

REFUNDS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		9,950 00	786 86	3,271,284 17
	CROWN LANDS.—*Continued.*				
J. Brimson	Refund on land, Paipoonge		10 00		
J. Tonkin	do do		200 00		
Jas. Mooney	do Romney		10 00		
D. K. Stewart	do Tudor		5 00		
F. J. Clarke	do Tunnel Island		43 62		
R. Forbes	do Victoria		160 00		
R. McLeod	do Widdifield		80 25		
Crysler & Crysler	do Winchester		99 60		
L. D. Averell	do Waters		10 00		
A. M. Stearns	Refund on mining location		90 00		
W. K. Moore, M.D.	do		40 00		
S. S. Scoville	do		40 00		
Russell & Co	do		150 00		
R. O. McCulloch	do		80 00		
Kingsmill, Symons & Co	do		485 00		
A. B. Upton	do		4 00		
J. Lacourse	do		27 00		
Georgian Bay Lumber Co	Refund timber dues		66 29		
A. Luttrell	do		52 50		
J. Warren	do		147 76		
C. Collins	do		8 86		
D. Ricker	do		83 96		
S. Clarke	do		13 20		
J. Booth	do		18 72		
J. Mintie	do		23 00		
J. McDonald	do		13 20		
C. McCague	do		35 64		
J. Brennen	do		11 50		
M. Jamieson	do		14 66		
R. H. Rumford	do		2 40		
Ira Mayhew	do		130 28		
J. Patterson	do		84 17		
J. Martin	do		26 58		
J. Applegate	do		61 21		
A. C. Zarnoski	do		3 87		
C. Wadsworth	do		96 38		

J. Gibbon	do		49 21		
J. Hive	do		65 82		
N. Moore	do		81 55		
H. Wirton	do		5 94		
Telfer Bros	do		121 05		
D. A. Huckins	do		83 79		
J. A. Hannaford	do		28 75		
W. Whittington	do		33 15		
M. Ohlenann	do		9 12		
P. Errington	do		235 37		
A. Cooke	do		19 32		
G. A. McCaig	do		13 06		
T. B. Cole	do		16 92		
G. Hannaford	do		34 49		
W. Payne	do		20 19		
D. Thomas	do		30 85		
W. S. Eyre	do		7 72		
D. Montgomery	do		14 25		
Peter Summers	do		22 37		
Patrick Summers	do		40 68		
G. McCullough	do		67 75		
T. McCullough	do		7 30		
J. H. Thorburn	Refund of Cullers' fees		4 00		
A. W. Brundage	do		4 00		
W. Smith	do		4 00		
J. A. Sharpe	do		4 00		
W. J. Jones	do		4 00		
H. J. Edgington	do		4 00		
T. N. Smith	Refund on maps		3 00		
Bowman & Moore	do		1 00		
E. B. Leary	do		1 00		
C. J. Hollind	Refund on plan town plot Alberton		10 00		
Scott & Scott	Refund of trespass dues		82 40		
A. Lumsden	Refund of ground rent		612 00		
A. Fraser	do		189 00		
Corporation of Alice & Fraser	Refund on account of road allowance		49 29		
Anson	do		23 12		
Armour	do		18 82		
Belmont & Metheun	do		34 86		
Bangor, McClure & Wicklow	do		133 03		
Barrie	do		72 50		
Brougham	do		21 70		
Burleigh, Anstruthers & Chandos	do		145 43		
Carden & Dalton	do		13 53		
Cardiff & Monmouth	do		25 57		
Cardwell	do		20 63		
Carlo & Mayo	do		13 38		
Chaffey	do		3 66		
	Carried forward		14,885 22	786 86	3,271,284 17

REFUNDS.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		14,885 22	786 86	3,271,284 17
	CROWN LANDS.—*Continued.*				
Clarendon and Miller	Refund on account of road allowance		51 07		
Dalhousie, N. Sherbrooke and Lavant	do		4 56		
Darling	do		3 73		
Denbigh, Abinger and Ashby	do		198 64		
Dungannon and Farady	do		78 31		
Draper and Oakley	do		212 70		
Elziver and Grimsthorpe	do		350 23		
Ferris	do		10 07		
Foley	do		55 55		
Galway and Cavendish	do		191 86		
Glamorgan	do		17 99		
Griffith and Mattawatchan	do		50 24		
Hagarty, Sherwood, Jones, Burns and Richards	do		246 13		
Harvey	do		25 68		
Himsworth, N	do		6 22		
Humphrey	do		40 49		
Joly	do		68 34		
Kalader, Anglesea and Effingham	do		97 86		
Kennebec	do		8 39		
Laxton and Digby	do		11 38		
Luttenworth and Hindon	do		33 16		
Machar	do		18 23		
Marmora and Lake	do		7 56		
Monteagle and Herschell	do		29 91		
Medora and Wood	do		241 44		
Morrison	do		23 65		
McDougall	do		6 11		
McKellar	do		2 23		
McLean and Ridout	do		67 45		
Orillia and Matchedash	do		33 21		
Olden	do		18 40		
Palmerston and S. Canonto	do		39 02		
Perry	do		27 39		

Radcliffe & Raglan	do			13 19		
Ryde	do			38 55		
Sherbourne	do			65 28		
Somerville	do			6 52		
Stisted	do			11 60		
Strong	do			99 96		
Tudor, Wollaston, Limerick and Cashel	do			95 12		
					17,492 64	
	MUNICIPALITIES FUND.					
Treasurer, Ontario	To pay widows' pensions				1,459 92	
	LAND IMPROVEMENT FUND.					
Township—						
Bagot	Allowance under 16 Vict., Cap. 159, from proceeds Crown Lands		86			
Bromley	do	do	3 38			
Carrick	do	do	68 63			
Culross	do	do	62 81			
Canonto, S	do	do	30 28			
Carden	do	do	9 22			
Eldora	do	do	39 16			
Elziver	do	do	18 98			
Greenock	do	do	8 46			
Holland	do	do	48 80			
Howick	do	do	50 67			
Kinloss	do	do	44 37			
Luther, E	do	do	14 10			
Melancthon	do	do	81 76			
Minto	do	do	39 70			
Osprey	do	do	43 64			
Sydenham	do	do	12 73			
Sherbrooke, S	do	do	6 96			
Somerville	do	do	9 79			
Tilbury, W	do	do	10 77			
				605 07		
Arran	do	Common School Lands	196 89			
Bruce	do	do	73 72			
Brant	do	do	14 25			
Bentinck	do	do	1 17			
Elderslie	do	do	163 35			
Egremont	do	do	90 42			
Elma	do	do	78 37			
Grey	do	do	22 21			
Huron	do	do	207 40			
Holland	do	do	86 20			
Morris	do	do	6 47			
	Carried forward		940 45	605 07	19,739 42	3,271,284 17

REFUNDS.—*Concluded.*—MISCELLANEOUS EXPENDITURE.

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	940 45	605 07	19,739 42	3,271,284 17
	LAND IMPROVEMENT FUND.—*Continued.*				
Township—					
Normanby	Allowance under 16 Vict., Cap. 154, from proceeds Common School Lands.	102 75			
Sullivan	do do	56 12			
Sydenham	do do	48 35			
Turnberry	do do	170 51			
Wawanosh, E.	do do	111 32			
			1,429 50		
Proton	do Grammar School Lands.		121 32		
				2,155 89	
	MISCELLANEOUS.				
C. H. Ritchie	Refund on Township Rose (Algoma lands)		11 80		
Sheriff McKim	Refund of amount paid in error, Queen *v.* Watson, County Wellington		5 00		
				16 80	
	Total Refunds				21,912 11
	MISCELLANEOUS EXPENDITURE.				
	CHARGES ON REVENUE.				
L. K. Cameron	Paper *re* law stamps	1 90			
British American Bank Note Co	Printing do	187 50			
Dominion Express Co.	Charges do	1 15			
Canadian Express Co.	do do	1 25			
D. E. Cameron	Travelling expenses *re* law stamps	25 00			
W. J. Millican	Refund cancelled do	2 90			
Warwick & Sons	Printing and binding *re* licenses	596 17			
W. Barber & Bros	Paper do	18 38			
E. Dickie	Services do	133 32			
W. H. Clarke	do do	230 00			

G. W. Duncan	do	do	175 00		
Allen Kerr	do	do	20 83		
J. K. Stewart	Travelling expenses	do	222 39		
J. F. Mowat	do	do	50 00		
H. Totten	do	do	6 65		
T. Botham	do	do	69 00		
Warwick & Sons	Printing and binding *re* Algoma taxes		30 83		
C. H. Ritchie	Refund of interest,	do	1 63		
A. McDougall	Salary as solicitor *re* Succession Duty Act		250 00		
British American Bank Note Co	Paper, printing, etc., Government bonds		300 00		
Bank of Commerce	Charges collecting debentures and coupons		158 44		
				2,482 34	
	Less refunds on account printing, etc., *re* licenses			606 10	
					1,876 24
	INDUSTRIAL SCHOOL, MIMICO.				
Beverley Jones, Treasurer	Legislative grant			1,900 00	
Hon. The Treasurer	Purchase of land			1,600 00	
					3,500 00
	MARRIAGE LICENSES.				
Warwick & Sons	Printing and binding			378 79	
L. K. Cameron	Stationery			2 50	
Canadian Express Co	Charges			9 70	
					390 99
	ONTARIO RIFLE ASSOCIATION.				
W. G. Mutton	Legislative grant				1,000 00
	ONTARIO ARTILLERY ASSOCIATION.				
L. H. Irving	Legislative grant				500 00
	EXPENSES OF ELECTIONS.				
J. P. Gildersleeve	Costs as Returning Officer,	Kingston		601 29	
Robert Broddy	do	Peel		594 15	
W. Moffat	do	Renfrew, North		603 32	
Peter Ryan	do	Toronto		5,324 53	
Warwick & Sons	Printing ballots, etc			668 11	
W. Barber & Bros	Paper			45 10	
G. M. Rose	Postage stamps			15 00	
Dominion Express Co.	Charges			2 05	
Canadian Express Co	do			90	
M. F. Hale & Co	Cab hire			2 00	
					7,856 45
	Carried forward				15,123 68	3,293,196 28

MISCELLANEOUS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.		$ c.	$ c.	$ c.	$ c.
	Brought forward				15,123 68	3,293,196 28
	REVISION OF VOTERS' LISTS.					
His Honour Judge Johnston	Services and expenses,	Algoma		14 20		
do Barrett	do	Bruce		41 65		
do McCarthy	do	Dufferin		34 43		
do Hughes	do	Elgin		37 70		
do Ermatinger	do	do		25 80		
do Horne	do	Essex		86 10		
do Price	do	Frontenac		71 80		
do Morrison	do	Grey		49 85		
do Upper	do	Haldimand		44 75		
do Kingsmill	do	Halton		65 42		
do Toms	do	Huron		54 20		
do Doyle	do	do		14 80		
do Fralick	do	Hastings		82 40		
do Bell	do	Kent		30 20		
do Reynolds	do	Leeds and Grenville		444 82		
do Wilkinson	do	Lennox and Addington		139 00		
do Mackenzie	do	Lambton		15 30		
do Senkler	do	Lincoln		26 70		
do Davis	do	Middlesex		13 50		
do Elliott	do	do		83 95		
do Mahaffe	do	Muskoka		44 60		
do Benson	do	Northumberland and Durham		94 80		
do Ketchum	do	do do		59 97		
do Robb	do	Norfolk		45 95		
do Dartnell	do	Ontario		85 50		
do Burnham	do	do		75 85		
do McCarthy	do	Peel		18 88		
do Kingsmill	do	do		33 07		
do O'Brian	do	Prescott and Russell		26 45		
do Weller	do	Peterborough		15 05		
do Woods	do	Perth		22 10		
do Deacon	do	Renfrew		16 60		
do Ardagh	do	Simcoe		104 10		
do Carman	do	Stormont, Dundas and Glengarry		94 88		
do Lacourse	do	Waterloo		5 70		
do Baxter	do	Welland		41 79		

do Jamieson	do	Wellington		31 15	
do Chadwick	do	do		18 15	
do Muir	do	Wentworth		52 60	
do Morgan	do	York		144 42	
P. McCurry, S. M	do	Parry Sound		36 60	
					2,444 78
		GRATUITIES.			
S. B. Clark	Allowance on retiring from positon of	Taxing Officer, Osgoode Hall		2,000 00	
H. S. Crewe	do	First Officer Registrar-General's Branch		2,000 00	
E. Holmes	do	Assistant Librarian		406 25	
E. W. Murphy	do	Protestant School Teacher, Boys' Reformatory		1,050 00	
L. Hunt	do	Guard, Central Prison		500 00	
J. H. Weaver	do	do		500 00	
D. Kirkpatrick	do	do		700 00	
James Blacker	do	do		60 00	
John Kelly	do	Tailor, Toronto Asylum		156 25	
Joseph Wilson	do	Supervisor, Toronto Asylum		150 00	
James Patterson	do	Engineer, Orillia Asylum		700 00	
James Kenny	do	Watchman, Mercer Reformatory		490 00	
Miss E. M. Kirkpatrick	do	Matron, Kingston Asylum		262 50	
Mrs. E. J. Notman	Allowance to family of late	John Notman, Queen's Printer		2,500 00	
Mrs. J. W. Manning	do	J. W. Manning, Provincial License Inspector		670 00	
Mrs. M. McCallum	do	R. McCallum, Engineer, Normal and Model Schools, Toronto		680 00	
Mrs. K. McKenzie	do	A. McKenzie, Bursar, Minico Asylum		300 00	
Mrs. M. A. Grisdale	do	G. Grisdale, Constable, N. F. Police Force		120 67	
Estate late Col. Gillmor	One year's salary of late	Clerk of the House		1,800 00	
W. M. Kelly	Further allowance,	Ex-Warden, Boys' Reformatory		500 00	
George Smith	Special grant for injury received in public service			200 00	
					15,745 67
		ARCHÆOLOGICAL RESEARCHES IN ONTARIO.			
James Bain, jr	Legislative grant				1,000 00
		TELEPHONE SERVICES.			
Bell Telephone Co	Rent of instruments				1,337 32
		REMOVAL OF PATIENTS.			
P. Simser	Services and expenses as	Bailiff		2,515 00	
J. Waddell	do	do		1,484 00	
Mrs. Johnston	do	do		2,284 00	
		Carried forward		6,283 00	35,651 45 3,293,196 28

MISCELLANEOUS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		6,283 00	35,651 45	3,293,196 28
	REMOVAL OF PATIENTS.—*Continued.*				
Sheriff Carpenter	Expenses *re* transfer of prisoners from Rainy River to Toronto Asylum		96 00		
G. T. Railway Co.	Transfer of patients to Mimico Asylum		296 80		
C. A. Sippi	do do		54 75		
T. C. Wilson	Hire of van		2 00		
Dr. J. Robinson	Travelling expenses		8 35		
W. & D. Dineen	Clothing for Bailiffs		6 00		
F. Hall & Son	do		2 00		
McMaster & Co	do		57 70		
C. P. Industries	do		45 50		
Lugsdin & Barnett	Club and bag		5 50		
Mrs. Hubertus	Postage stamps		15 00		
L. K. Cameron	Stationery		2 25		
E. Jenkinson	Services *re* collections from counties		100 00		
				6,974 85	
	PRISONERS' AID SOCIETY.				
A. M. Rosebrugh	Legislative grant			1,000 00	
	SANITARY INVESTIGATIONS AND HEALTH CONFERENCES.				
Dr. P. H. Bryce	Travelling expenses		370 00		
W. Copping	do Guelph *re* water		8 40		
G. Burden	do *re* Health Act, Algoma District		36 79		
R. Rush	do do do		14 60		
J. I. McKenzie	do Health Conference, Niagara Falls		4 95		
T. McGillicuddy	do do do		8 50		
do	Services and expenses *re* inquiry into Anthrase Act, Acton		13 10		
J. Henry	Hire of boat *re* inspection Ashbridge's Bay		1 00		
H. E. Clarke & Co.	Bag for dissecting apparatus		4 50		
T. McGillicuddy	Reporting proceedings of Health Conference		30 00		
Warwick & Sons	Printing and binding report Health Conference		240 32		
				732 16	

	OUTBREAK OF EPIDEMICS.				
Dr. Hodgetts	Services and expenses *re* outbreak of diphtheria		235 20		
P. H. Bryce	Travelling expenses		242 00		
Warwick & Sons	Printing and binding report *re* disposal of sewage		38 18		
do	Printing circulars *re* Cholera		108 16		
				623 54	
	UNIVERSITY COLLEGE, "LADIES' DEPARTMENT."				
Miss L. Salter	Twelve months' salary as Matron			500 00	
	VACCINE FARM.				
A. Stewart, M.D.	Legislative grant			375 00	
	EXPENSES *re* FACTORIES ACT.				
J. R. Brown	Twelve months' salary as Inspector		1,000 00		
R. Barber	do do		1,000 00		
O. A. Rocque	do do		1,000 00		
J. R. Brown	Travelling expenses		528 70		
R. Barber	do		625 70		
L. K. Cameron	Stationery		24 58		
Labor Directory P'blishing Co	Advertising		2 00		
Warwick & Sons	Printing and binding		32 10		
W. Barber & Bros	Paper		14 35		
				4,227 43	
	ARBITRATION WITH CANADA AND QUEBEC.				
E. Irving	Legal services		350 00		
J. R. Forsyth	Services as stenographer		600 00		
J. M. Plunkett	do Typewriting		15 00		
G. G. Kezar	do do		7 50		
W. Stratchey	do do		4 00		
H. A. May	do do		1 50		
William Laux	do do		1 00		
J. McElroy	do do		1 00		
Keating & Frazer	do do		2 00		
Holland Bros	Copying documents		14 20		
G. Bengough	Rent of typewriter		25 00		
R. A. Baldwin	Copies of maps		4 00		
L. K. Cameron	Stationery		10 15		
G. M. Rose	Postage stamps		3 00		
J. P. McDonell	Travelling expenses, etc		218 46		
Hon. Sir O. Mowat	Travelling expenses		21 00		
				1,277 81	
	Carried forward			51,362 24	3,293,196 28

MISCELLANEOUS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			51,362 24	3,293,196 28
	DRAINAGE COMMISSION.				
J. B. Rankin	Services and expenses as Commissioner		1,603 69		
W. G. McGeorge	do do		1,201 95		
A. McIntyre	do do		677 60		
A. Lamarsh	do do		696 70		
E. J. Scully	Travelling expenses		67 20		
Warwick & Sons	Printing and binding Drainage Laws		106 37		
W. Barber & Bros	Paper		9 12		
L. K. Cameron	Stationery		15 70		
A. Bellamy	Advertising		3 20		
Dominion Express Co	Charges on stationery		35		
				4,381 88	
	EXHIBIT FOR IMPERIAL INSTITUTE.				
D. Boyle	Services, expenses and disbursements *re* collection of exhibits		760 73		
W. J. Morris	do do		256 50		
P. McGregor	do do		19 85		
P. McKellar	do do		551 98		
E. F. Coxwell	do do		102 75		
J. J. Withrow	Services as Commissioner		50 00		
J. F. Boyle	Services		107 00		
A. P. Coleman	do		25 00		
J. N. Lyons & Co	Show cases		1,299 59		
Elliott & Son	Map of Ontario		429 00		
Withrow & Hillock	Packing boxes, stand, etc		102 80		
Sir J. R. Somers, Vine	Proportion of cost *re* furnishing conference room		497 54		
Alex. Parks	Mineral specimens		35 00		
G. B. Robson	Photos of oil wells, etc		12 00		
Canada Granite Co	Dressing and polishing samples		382 60		
D. Macintosh & Son	do		4 00		
J. White & Son	do		11 75		
Imperial Oil Co	Packing samples		8 00		
James Bell	Teaming phosphate		1 75		
Warwick & Sons	Printing circulars		3 75		
L. K. Cameron	Stationery		33 23		

A. Rains	Rent of office		100 00		
G. T. Railway Co.	Freight charges		42 67		
Hon. G. W. Ross	Travelling expenses		812 44		
P. O'Byrne	Expenses and disbursements		769 55		
				6,419 48	
	DOMINION TEACHERS' ASSOCIATION.				
E. W. Arthy, Treasurer	Legislative grant			500 00	
	CANADIAN MILITARY INSTITUTE.				
W. R. Miles, Treasurer	Legislative grant			100 00	
	COLUMBIA EXHIBITION.				
Warwick & Sons	Printing		32 57		
Mail Printing Co	do		34 75		
P. C. Allan	Postage stamps		22 50		
D. Stirton	do		6 00		
H. C. Dixon	do		99 00		
L. K. Cameron	Stationery		69 07		
Brown Bros	do		4 85		
Warwick & Sons	do		2 80		
Presbyterian News Co	do		1 00		
J. E. Bryant Co	Book		15 00		
J. R. Lundy	Cases, crates, etc		22 69		
W. G. Guest	do		10 00		
W. H. Hill	do		28 89		
Bowman Hardware Co	do		6 10		
R. Mitchell	do		2 75		
Whithall, Tatum & Co	Bottles, jars, etc		738 39		
Dominion Paper Co	Boxes		1 20		
Kilgour Bros	do		9 75		
Wright & Co	Mantles		40 60		
A. R. Willet	Designs for courts		125 00		
J. A. Bruce	Sample bags		7 06		
Dick, Ridout & Co	do		90		
M. L. Hughes	Material, etc., for packing exhibits		29 31		
T. C. Watkins	do		12 05		
Pratt & Watkins	do		4 18		
M Brennan & Sons	do		1 60		
J. A. Marshall	do		20 00		
J. E. Townsend	do		15 48		
Fee & Mackey	do		25 00		
E. H. Roberts	do		50		
Stanley, Mills & Co	Hardware		11 49		
	Carried forward		1,399 88	62,763 60	3,293,196 28

MISCELLANEOUS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		1,399 88	62,763 60	3,293,196 28
	COLUMBIA EXHIBITION.—*Continued.*				
P. Bertram	Hardware		6 04		
J. H. Fleming	Collection of birds		187 90		
Thurston & Spanner	do		25 00		
W. G. Kidd	Loan of mineral specimens		50 00		
Canada Granite Co	Polishing marble, etc		172 00		
G. F. Bostwick	Desk		20 00		
G. T. Railway Co	Freight charges		113 09		
C. P. Railway Co	do		61 39		
J. J. Withrow	To pay freight charges on lumber, samples, etc		200 00		
Dominion Express Co	Charges		90 10		
G. N. W. Telegraph Co	Messages		9 30		
C. P. R. Telegraph	do		22 15		
Bell Telephone Co	Rent of instrument		22 50		
G. Bengough	Rent of typewriter		32 50		
E. H. Brown	Services as typewriter		252 00		
M. Ure	do		9 00		
G. Stafford	do		23 00		
C. Brown	Cab hire		34 75		
W. J. Morris	do		20 00		
S. May	do		20 00		
A. W. Carscallen	Cartage		4 50		
A. Parkes	do		3 50		
T. A. Walker	do		6 00		
Rose Cartage Co	do		1 25		
J. McDonald	do		1 00		
W. Charters	do		1 00		
W. K. Colville	do		8 00		
N. Awrey	Travelling expenses and disbursements		2,839 08		
A. H. Pettit	do do		1,145 14		
D. Boyle	do do		152 73		
R. Gibson	do do		119 45		
J. A. Marshall	do do		180 10		
J. Geddes	do do		58 27		
J. C. Snell	do do		52 00		
W. R. Aylesworth	do do		270 87		

James Barclay	do	do		48 35	
E. F. Coxwell	do	do		81 40	
E. J. Guy	do	do		91 79	
S. Mackey	do	do		13 75	
Sundry persons	do	do		398 96	
Hon. A. S. Hardy	do	do		65 30	
N. Awrey	Services as Commissioner			2,230 00	
D. Boyle	Services			852 50	
A. H. Pettit	do			680 00	
E. J. Guy	do			108 00	
S. Mackay	do			80 00	
R. Gibson	do			74 00	
J. A. Marshall	do			342 00	
Isaac Geddes	do			100 00	
J. C. Snell	do			72 00	
W. R. Aylesworth	do			125 00	
James Barclay	do			84 00	
E. F. Coxwell	do			77 50	
Sundry persons	do			761 91	
do	Services attending Advisory Board			61 00	
do	Travelling expenses	do		111 01	
Sundry newspapers	Advertising			35 40	
					14,110 12
	REMOVAL TO NEW PARLIAMENT BUILDINGS.				
D. Dunn	Services			27 10	
M. C. Roblin	do			138 00	
E. J. Barton	do			125 15	
C. B. Gamble	do			80 00	
W. J. McCutcheon	do			50 00	
R. Brown	do			132 50	
James Kanaen	do			11 50	
John Kanaen	do			17 50	
F. O'Byrne	do			7 00	
T. Fahey	do			21 00	
A. Williams	do			24 00	
P. Keenan	do			6 00	
John Watson	do			54 00	
A. Budd	do			24 00	
J. Burch	do			55 70	
W. R. Ledger	do			47 15	
J. F. Sharpe	do			47 15	
S. Ross	do			6 00	
J. J. Walsh	do			10 00	
J. Hughes	do			20 00	
W. Power	do			9 00	
M. J. O'Neil	do			6 00	
W. Ryan	do			30 00	
	Carried forward			948 75	76,903 72	3,293,196 28

MISCELLANEOUS EXPENDITURE.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		948 75	76,903 72	3,293,196 28
	REMOVAL TO NEW PARLIAMENT BUILDINGS.—*Continued.*				
F. Hughes	Services		13 50		
A. S. Lane	do		9 00		
G. Crocknell	do		7 50		
Rose Cartage Co.	Cartage		293 70		
Verral Transfer Co	do		73 25		
G. P. Buckley	Removing shutters and bars *re* safes		5 00		
C. W. Coleman	Removing clock		2 50		
C. Wilson	Removing and replacing scales		38 50		
R. Walker & Sons	Packing cases		4 00		
Barchard & Co	do		44 04		
W. H. Sparrow	Brush		1 50		
				1,441 24	
	FISH AND GAME WARDENS.				
A. D. Stewart	Services as Chief Warden	448 66			
J. H. Willmott	do Warden	47 40			
J. A. Gill	do do	14 40			
H. K. Smith	do do	47 40			
F. C. Quallins	do do	44 40			
W. Unwin	do do	15 00			
W. G. Wheeler	do Ranger	7 50			
C. N. Chapman	do do	10 00			
F. Mills	do do	8 00			
J. A. Barron	Legal services and expenses *re* prosecutions	51 60			
Briggs & Swazie	Special services and expenses *re* Indian reserve	99 50			
M. Stewart	Services as Stenographer	32 00			
			825 86		
Warwick & Sons	Printing abstracts, laws, etc	1,157 87			
Dorrien Mfg & Plating Co.	Wardens' badges	106 25			
			1,264 12		
A. F. Campean	Travelling expenses	6 85			
W. G. Wheeler	do do	3 00			
C. N. Chapman	do do	7 75			
W. Unwin	do do	13 00			
F. Mills	do do	12 05			

J. A. Gills	do	do	and disbursements	8 00			
H. K. Smith	do	do	do	70 37			
J. H. Willmott	do	do	do	168 84			
F. C. Quallins	do	do	do	156 84			
A. D. Stewart	do	do	do	351 86			
					798 51		
						2,888 49	
	COSTS, SHARPE *v.* LAKEFIELD LUMBER CO.						
Lakefield Lumber Mfg Co	Proportion of costs					1,250 00	
	BOUNTY FOR DESTRUCTION OF WOLVES.						
George Sawyers	Bounty				10 00		
J. W. McFarlane	do				10 00		
A. McConnell	do				10 00		
P. Aubin	do				10 00		
R. Jessop	do				10 00		
E. Riley	do				10 00		
A. Jenkins	do				20 00		
T. Archer	do				10 00		
W. Hood	do				20 00		
W. McIntyre	do				10 00		
O. Trembley	do				20 00		
J. Bice	do				10 00		
J. K. Byres	do				10 00		
J. Bennie	do				10 00		
A. G. Grover	do				10 00		
J. Wingle	do				4 00		
J. McGhee	do				4 00		
J. Miller	do				12 00		
M. Sheedy	do				4 00		
J. A. Ellis	do				4 00		
						208 00	
	CENTENARY CELEBRATION, NIAGARA AND TORONTO.						
W. Rennie	Legislative grant					2,000 00	
	DEHORNING COMMISSION.						
Hon. Chas. Drury	Services, expenses and disbursements as Commissioner				638 80		
A. Glendenning	Services and expenses,	do			349 80		
D. M. Macpherson	do	do			335 95		
R. Gibson	do	do			319 50		
Andrew Smith, V. S.	Services as Commissioner				136 00		
	Carried forward				1,780 05	84,691 45	3,293,196 28

MISCELLANEOUS EXPENDITURE.—*Concluded.*—RAILWAY SUBSIDY FUND.

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward		1,780 05	84,691 45	3,293,196 28
	DEHORNING COMMISSION.—*Continued.*				
J. J. Kelso	Services and expenses as Secretary		805 70		
L. K. Cameron	Stationery		11 75		
C. Hutchinson	To pay witness fees *re* prosecution		173 00		
				2,770 50	
	UNPROVIDED ITEMS.				
Hon. T. W. Anglin	Services as Commissioner, Proton Commission	500 00			
Æ Irving	do do	500 00			
L. K. Cameron	Stationery do do	3 38			
			1,003 38		
G. A. McCallum	Services and disbursements of Commissioners *re* Fish and Game	2,003 13			
Warwick & Sons	Printing and binding reports, do	7,000 00			
do	Printing circulars, etc., do	30 37			
L. K. Cameron	Stationery, do	16 34			
C. Gripton	Rubber stamps, do	4 50			
Canadian Express Co	Charges, do	9 35			
			9,063 69		
Warwick & Sons	Printing *re* Prison Reform Commission	7 10			
J. W. Langmuir	Sundry disbursements *re* Prison Reform Commission	21 85			
			28 95		
James Noxon	Services as Commissioner Public Institutions Commission	696 40			
Warwick & Sons	Printing, do do	22 93			
L. K. Cameron	Stationery, do do	4 35			
			723 68		
Æ. Irving	Legal services *re* Electric Railway, Niagara Falls Park	350 00			
do	do Electric power, do	250 00			
do	do Howard versus, do	1,000 00			
W. Barber & Bros	Paper, do	1 05			
Warwick & Sons	Printing and binding, do	2 65			
			1,603 70		
Æ. Irving	Services as Commissioner *re* Sheriff Sutton, enquiry		500 00		
do	do Ross enquiry, C. L. Department		104 00		
Sundry Insurance Companies.	Insurance on carpenters' risk on New Parliament Buildings	1,725 00			
E. R. Lucas	Services as Nightwatchmen, do	540 00			
C. J. Peppin	do do	540 00			

D. Dunn	do do	174 00		
Mrs. J. Lovett	Cleaning watchmen's rooms, do	11 50		
			2,990 50	
W. H. Stone	Expenses *re* funeral late Lieutenant-Governor Campbell	1,200 00		
F. C. Law	To pay sundry expenses, do	495 92		
Band Committee, Q. O. R.	Services of band, do	86 00		
			1,781 92	
Royal Insurance Co.	Premium on farm buildings, Guelph	75 00		
Lancashire Insurance Co.	do do	75 00		
			150 00	
Warwick & Sons	Printing and binding report, Mining Commission, 1891		262 50	
W. Magill	Subscription *re* protest closing up Simcoe street		50 00	
E. C. Young	Services as Registrar, Haliburton		200 00	
McCarthy, Osler & Hoskin	Services and disbursements, C. Kelly v. Dr. Clark, Supt. Toronto, L. A.		130 74	
E. B. Borron	Expenses of enquiry *re* Indian annuities, etc	750 00		
W. Barber & Bros	Paper *re* Borron's report, water powers	5 57		
			755 57	
Thomas Marrin	Further compensation for injuries received while acting as Sessional Messenger		100 00	
L. McDonald	Compensation for injuries at Experimental Farm		100 00	
Miss Annie MacIntyre	Compensation for injuries received in Laundry, Agricultural College		250 00	
Union Bank of Newfoundland	Grant to sufferers by St. John's fire		10,000 00	
Rolph, Smith & Co	Engraving railway certificates	37 50		
do	do annuity bonds	62 50		
			100 00	
Sundry newspapers	Advertising *re* annuities		455 40	
				30,354 03
	Total Miscellaneous Expenditure			117,815 98
	Total Expenditure under Supply Bill			3,411,012 26

RAILWAY SUBSIDY FUND.

(Authority for payment, 35 Vic., cap. 24 and 37 Vic., cap. 27.)

Credit Valley Railway	On account of grants in aid of lines from Toronto to Brock Road and Streetsville to Alton.			
	Payment due 30th June, 1892	908 46		
	do 31st December, 1892	908 46		
			1,816 92	
Grand Junction Railway	On account of grant in aid of lines from Sterling to Ashburnham—45.86 miles.			
	Payment due 30th June, 1892	3,967 80		
	do 31st December, 1892	3,967 80		
			7,935 60	
Canada Atlantic Railway	On account of grant in aid of lines from the boundary line to Ottawa—65.72 miles.			
	Payment due 30th June, 1892	5,686 09		
	do 31st December, 1892	5,686 09		
			11,372 18	
	Carried forward			21,124 70 3,411,012 26

RAILWAY SUBSIDY FUND.—*Continued.*

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward	.....	....	21,124 70	3,411,012 26
	RAILWAY SUBSIDY FUND.—*Continued.*				
	(Authority for payment, 39 Vic., cap. 22 and 42 Vic., cap. 28.)				
Credit Valley Railway..... .	On account of grant in aid of lines from Brock Road to Ingersoll and from Cataract to Elora.				
	Payment due 30th June, 1892.....	4,499 04			
	do 31st December, 1892	4,499 04			
			8,998 08		
Belleville & North Hastings Railway.....	On account of grant in aid of lines from Grand Junction Railway to Moore Mine—22 miles.				
	Payment due 30th June, 1892.....	2,855 16			
	do 31st December, 1892.....	2,855 16			
			5,710 32		
Grand Junction Railway.....	On account of grant in aid of lines from Sterling to Ashburnham—45.86 miles.				
	Payment due 30th June, 1892.....	1,983 89			
	do 31st December, 1892.....	1,983 89			
			3,967 78		
Canada Atlantic Railway	Ou account of grant in aid of lines from the boundary line to Ottawa—65.72 miles.				
	Payment due 30th June, 1892.....	2,843 05			
	do 31st December, 1892.....	2,843 05			
			5,686 10		
	(Authority for payment, 40 Vic., cap. 24.)			24,362 28	
Victoria Railway	On account of grant in aid of lines from Kinmount to Haliburton—22.31 miles.				
	Payment due 30th June, 1892.....	7,721 04			
	do 31st December, 1892.....	7,721 04			
			15,442 08		
Whitby, Port Perry & Lindsay Railway.....	On account of grant in aid of lines from Port Perry to Lindsay—25.945 miles.				
	Payment due 30th June, 1892.....	2,244 76			
	do 31st December, 1892.....	2,244 76			
			4,489 52		

Prince Arthur's Landing & Kaministiquia Railway ..	On account of grant in aid of lines from Prince Arthur's Landing to Fort William—5.995 miles.				
	Payment due 30th June, 1892	518 68			
	do 31st December, 1892	518 68			
			1,037 36		
Credit Valley Railway.....	On account of grant in aid of lines from Toronto to Ingersoll, Streetsville to Alton and Cataract to Elora—151.857 miles.				
	Payment due 30th June, 1892	6,621 41			
	do 31st December, 1892	6,621 41			
			13,242 82		
Kingston & Pembroke Railway.....	On account of grant in aid of lines from Mississippi to Madawaska River—28.42 miles.				
	Payment due 30th June, 1892	9,835 58			
	do 31st December, 1892	9,835 58			
			19,671 16		
Canada Atlantic Railway....	On account of grant in aid of lines from the boundary line to Ottawa—65.72 miles.				
	Payment due 30th June, 1892	2,843 05			
	do 31st December, 1892	2,843 05			
			5,686 10		
	(Authority for payment, 41 Vic., cap. 16.)				
Hamilton & Northwestern Railway.....	On account of grant in aid of lines from Jarvis to Port Dover—8.975 miles.				
	Payment due 30th June, 1892	776 51			
	do 31st December, 1892	776 51			
			1,553 02		
North Simcoe Railway.....	On account of grant in aid of lines from Penetanguishene to Harrison's Crossing—33.343 miles.				
	Payment due 30th June, 1892	3,606 04			
	do 31st December, 1892	3,606 04			
			7,212 08		
				68,334 14	
	(Authority for payment, 44 Vic., cap. 23.)				
Grand Trunk, Georgian Bay & Lake Erie Railway	On account of grant in aid of lines from Harriston to Wiarton and Mount Forest to Durham—78.51 miles.				
	Payment due 30th June, 1892	5,746 65			
	do 31st December, 1892	5,746 65			
			11,493 30		
Erie & Huron Railway.....	On account of grant in aid of line from Rondeau to Wallaceburg—39.74 miles.				
	Payment due 30th June, 1892	3,055 01			
	do 31st December, 1892	3,055 01			
			6,110 02		
				17,603 32	
	Carried forward			131,424 41	3,411,012 26

RAILWAY SUBSIDY FUND.—*Concluded.*—ANNUITIES—DRAINAGE DEBENTURES (MUNICIPAL).—UNIVERSITY OF TORONTO.—LAND IMPROVEMENT FUND

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			131,424 44	3,411,012 26
	RAILWAY SUBSIDY FUND.—*Continued.*				
	(Authority for payment, 52 Vic., cap. 25.)				
Port Arthur, Duluth & Western Railway	On account of grant in aid of lines from switch to Kaministiquia River at Fort William.				
	Payment due 1st January, 1892	4,897 20			
	do 1st July, 1892	4,897 20			
			9,794 40		
Parry Sound Colonization Railway Co	On account of grant in aid of line from Parry Sound to Burk's Falls, 45 miles.				
	Payment due 1st January, 1892	699 60			
	do 1st July, 1892	699 60			
			1,399 20		
	Authority for payment, 55 Vic., cap. 41.)			11,193 60	
Port Arthur, Duluth & Western Railway	On account of grant in aid of lines from switch to Kaministiquia River at Fort William, 5 54 miles.				
	December 31st, 1892, cash payment			15,571 54	
					158,189 58
	ANNUITIES.				
Treasurer:—					
Ontario	To pay annuity Certificates due 30th June, 1892			33,100 00	
do	do do 31st December, 1892			37,100 00	
					70,200 00
	DRAINAGE DEBENTURES (MUNICIPAL).				
	(Authority for payment, 36 Vic., cap. 3, and 37 Vic., cap. 20.)				
The Treasurer—					
Bosanquet	Debentures issued by the Municipality for the Construction of Drainage Works			2,171 00	
Brooke	do do do			1,955 00	
Dawn	do do do			1,836 48	
Dereham	do do do			945 45	
Elma	do do do			5,713 00	
Georgina	do do do			1,050 00	
Luther, East	do do do			3,501 14	
Matilda	do do do			1,838 50	
Mariposa	do do do			4,000 00	
Metcalfe	do do do			2,677 65	
Moore	do do do			1,156 00	

Mosa	do	do				800 00	
Tilbury, East	do	do	do			1,012 00	
Warwick	do	do	do			488 00	
Zone	do	do	do			1,257 00	
Zorra, East	do	do	do			1,761 20	
Zorra, West	do	do	do			1,001 22	
							33,193 64
	TILE DRAINAGE.						
The Treasurer—							
Bosanquet	Debentures issued by the Municipality for the Construction of Tile Drainage Works					460 00	
Brooke	do	do	do			1,200 00	
Bayham	do	do	do			1,200 00	
Camden	do	do	do			600 00	
Colchester, North	do	do	do			500 00	
Ekfrid	do	do	do			200 00	
Harwich	do	do	do			500 00	
Howard	do	do	do			600 00	
Malahide	do	do	do			500 00	
Moore	do	do	do			500 00	
Morris	do	do	do			200 00	
Mosa	do	do	do			300 00	
Ops	do	do	do			100 00	
Orford	do	do	do			500 00	
Plympton	do	do	do			700 00	
Sombra	do	do	do			700 00	
Sarnia	do	do	do			400 00	
Southwold	do	do	do			400 00	
Warwick	do	do	do			200 00	
Yarmouth	do	do	do			700 00	
							10,400 00
	UNIVERSITY OF TORONTO.						
	(Authority for payment, 53 Vic., cap. 73)						
Board of Trustees	On account rebuilding						60,000 00
	LAND IMPROVEMENT FUND.						
	(Authority for payment, 54 Vic., cap. 9.)						
Arthur	Township					495 20	
Arthur	Village					60 00	
Alvinston	do					16 27	
Barrie	Town					37 50	
Brooke	Township					292 90	
Erin	do					61 49	
	Carried forward					963 36	3,742,995 48

TO WHOM PAID.	SERVICE.	$ c.	$ c.	$ c.	$ c.
	Brought forward			963 36	3,742,995 48
	LAND IMPROVEMENT FUND.—*Continued.*				
Forest	Town			83	
Maidstone	Township			84 26	
Meaford	Town			23 15	
Pembroke	Township			5 59	
Plympton	do			187 41	
Stafford	do			137 90	
Sydenham	do			281 60	
St. Vincent	do			115 74	
Tecumseth	do			126 16	
Vespra	do			122 49	
Wyoming	Village			1 25	
					2,049 74
	NEW PARLIAMENT BUILDINGS.				
	(Authority for payment, 54 Vic., cap. 4.)				
Carroll, Gaylord & Vick	On account contract Masonry, etc.			83,291 54	
Estate of Lionel Yorke	do Carpentering, etc.			27,198 88	
St. Lawrence Foundry Co	do Ironwork, etc.			7,461 92	
Purdy, Mansell & Mashinter	do Steam heating, plumbing, etc.			47,787 07	
Douglas Bros	do Slate roofing, etc			18,007 49	
A. H. Rundle	do Plastering, etc.			24,190 30	
Wagner, Zeidler & Co	do Interior woodwork, etc.			64,523 53	
R. J. Hovenden	do Painting, glazing, etc.			18,203 12	
H. C. Harrower	do Grand stair case, etc.			16,898 51	
W. J. McGuire & Co	do Interior fire hydrants, etc.			1,102 70	
Garson & Purcer	do Outer drainage, etc.			4,761 01	
R. A. Waite	On account services as Architect			9,500 00	
J. Drew	Services as Clerk of works outer drainage			234 50	
Sundry newspapers	Advertising for tenders			51 60	
					323,212 17
	STATIONERY OFFICE.				
	Amount of purchases			14,248 32	
	Less distribution to Departments			13,554 03	
					694 29
	Total Expenditure				4,068,951 68

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 12.

Being Statement of Expenditures (under authority of 43 Vic. Cap. 2, and amending Acts, 48 Vic. Cap. 6, 50 Vic. Cap. 3; and 54 Vic. Cap. 4,) on account of erection and construction of the new Parliament and Departmental Buildings, and shewing (1) the total of such expenditure to the 31st December, 1891; (2) the additional expenditure for the year 1892; and (3) the grand total of expenditure to 31st December, 1892.

NOTE.—For miscellaneous expenditures in respect of grading, filling up and laying out of grounds, etc., making of roads and pavements, etc., and equipment, furnishing and fitting up, etc., of the buildings, see Statement No. 13. For preliminary expenditures in respect of competitive plans, etc., see Note B, at foot of this statement.

To Whom Paid.	For what work, etc.	Expenditures to 31st December, 1891.	Additional Expenditures for Year 1892.	Grand Total of Expenditures to 31st December, 1892.
		$ c.	$ c.	$ c.
Lionel Yorke Carroll, Gaylord & Vick	Excavating, concreting, masonry, brickwork, etc.	260,320 77 307,884 99	 83,291 54	651,497 30
Lionel Yorke	Bricks not supplied by Central Prison (see Note A)	12,037 05		12,037 05
Central Prison	Bricks furnished contractors (see Note A)	30,000 00		30,000 00
Lionel Yorke	Iron work, etc., ground floor and basement of west wing	4,643 00		4,643 00
Lionel Yorke Margaret Yorke, Administratrix, etc.	Carpenter work, etc., other than ground floor and basement of west wing	4,062 53 44,944 48	 27,198 88	76,205 89
St. Lawrence Foundry Co.	Iron work, etc	39,575 92	7,461 92	47,037 84
A. H. Rundle	Plastering, etc	9,315 02	24,190 30	33,505 32
Purdy, Mansell & Mashinter	Plumbing, steamheating, etc	15,595 90	47,787 07	63,382 97
Douglas Bros.	Slate and copper roofing, etc.	24,724 04	18,007 49	42,731 53
Wagner, Zeidler & Co.	Interior wood work, etc	1,538 33	64,523 53	66,061 86
R. J. Hovenden	" painting, glazing, etc		18,203 12	18,203 12
H. C. Harrower	Grand stair case, grille work, etc		16,898 51	16,898 51
Garson & Purcer	Outer drainage, etc		4,761 01	4,761 01
Wm. J. McGuire & Co.	Interior fire hydrants, piping, etc		1,102 70	1,102 70
R. A. Waite	Payment of architect's fees	24,000 00	9,500 00	33,500 00
Sundry other expenditures	Re water mains, drains, advertising tenders, etc	5,745 97	286 10	6,032 07
	Totals	784,388 00	323,212 17	1,107,600 17

NOTE A.—By the terms of the original contract for excavating, concreting, masonry, brickwork, etc., approved of by the Provincial Legislature, the contractor was to receive (1) $671,250, and (2) thirteen and one-half million of brick from the Central Prison. If less than this amount of brick was supplied from the Central Prison he was to be paid at the rate of six dollars per thousand for the difference between the quantity supplied and said thirteen and one-half millions. The actual quantity of brick supplied from the Central Prison to the contractors was only 10,454,450.

NOTE B.—The preliminary expenditures for and in connection with the competitive and other plans, etc., prior to those prepared by Mr. Waite, and which preliminary expenditure amounted to a total of $17,876.76, are omitted from this statement, as they form no part of the actual cost of the erection and construction of these buildings under Mr. Waite's plans.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 13.

Shewing miscellaneous expenditures (*a*) to 31st December, 1891; (*b*) for the year 1892; and (*c*) the grand total of such expenditures to 31st December, 1892, in connection with the New Parliament and Departmental Buildings for (1) Old Hospital premises; (2) Outside fire hydrants, water mains for grounds, etc.; (3) Grading, levelling, filling up and laying out of the grounds and making of roads, pavements, etc.; (4) Equipping, furnishing and fitting up the buildings with passenger elevators, combination electric and gas fittings, and interior wiring for electric power and lighting; (5) Book stacks, shelving, reading desks, tables, etc., for library, members' reading-room, etc.; (6) Metal files, pigeon holes, and other fittings for vaults, offices, etc.; and (7) Such additional fittings, furnishings, equipment and other matters as are not included in the statement of expenditures for the erection and construction of these buildings.

NOTE—*For expenditures in respect of the erection and construction of the buildings, see Statement No. 12.*

To whom paid.	For what paid.	Expenditure to 31st December, 1891.	Expenditures 31st December, 1892.	Grand Total.
		$ c.	$ c.	$ c.
Toronto University	Old Hospital premises	30,000 00		
Bennett & Wright	Combination electric and gas light fittings		3,685 95	
Otis Bros. & Co	Electric elevators		7,520 00	
Office Specialty Co.	Vault files, pigeon holes, etc		3,470 00	
Wm. Simpson	Book stacks, tables, reading desks, etc., for library, reading-room, etc		2,583 00	
Conger Coal Co	Coal and wood		609 40	
M. Donnelly	"		146 70	
Consumers' Gas Co	Coke		77 15	
Toronto Fire Department	Fire alarm box		149 60	
Andrew Jeffrey	Copperas		50	
O. Tolliver	Whitewashing vaults, etc		36 00	
Stewart & Wood	Paint for vault floors		55 80	
A. Williams	Use of plow in grounds		1 50	
Water Works Department	Outside fire hydrants, etc		3,105 18	
Purdy, Mansell & Mashinter	Hose couplings, etc		103 30	
Grand Trunk Railway	Freight		5 72	
Oakley & Holmes	Materials for pavements, roads, concrete, etc		4 00	
Carroll & Vick	" "		1,836 62	
Frederick McKeown	" "		1,696 28	

James Maloney	Material for pavements, roads, concrete, etc.			713 63
Walter Page	" "			5 63
Wm. Best & Co	" "			32 00
J. B. Smith & Sons	" "			205 89
E. Hirons	" "			24 11
Geo. B. Meadows	" "			28 50
Wm. Harrison	" "			238 50
Britnell & Co	" "			1,248 96
John Hurst	" "			16 40
John Hearne	" "			84 24
S. Hallett	" "			1 88
Wm. Maguire	" "			2,883 75
St. Lawrence Foundry Co	Iron cover plates, etc			85 31
Bertram & Co	Tools,, hardware, etc.			1 70
G. Crow	"			4 44
G. Forrest	"			10 70
Rice Lewis & Son (Ltd.)	"			51 11
James Oag	"			9 45
Wm. Rosebrugh & Sons	"			334 05
S. Rogers & Co	Oil, etc			12 78
N. L. Piper & Son	"			17 05
Toronto Incan. Elec. Light Co	Material for electric light and power wiring, etc			190 90
Canadian Elec. Light Co	"	"		240 56
Royal Electric Co	"	"		190 59
Toronto Electrical Works	"	"		128 88
J. A. Kammerer	"	"		241 58
Bennett & Wright	"	"		4,144 63
Withrow & Hillock	"	"		446 62
James Scott	"	"		30 83
Pay lists of men	Work on roads, pavements, grounds, electric wiring, etc			8,059 28
	Totals		30,000 00	44,770 65	74,770 65

NOTE—This statement does not embrace (1) The expenditure of $17,876.76 for and in connection with the competitive and other plans, etc., submitted prior to those prepared and designed by Mr. Waite, as to which latter expenditures, see note "B" to Statement No. 12; nor (2) the expenditure of $1,258.06 in connection with the sale of lands set apart by Act to form New Parliament Buildings Fund. The amount realized from the sale of these lands to 31st December, 1892, was $174,210.04.

PROVINCIAL AUDITOR'S OFFICE,
TORONTO, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

No. 14.

STATEMENT OF EXPENDITURE by the Treasurer of Ontario, showing the amounts Unexpended and Over-expended during the twelve months ended December 31st, 1892.

SERVICE.	SUB-SERVICE.	Appropriation.	Expended.	Unexpended.	Over-expended.	Overdrafts of appropriations.
		$ c.	$ c.	$ c.	$ c.	$ c.
Civil Government	Government House—expenses	1,950 00	1,950 00			
	Lieutenant-Governor's Office—salaries	2,480 00	2,403 40	76 60		
	do —expenses	1,500 00	1,500 00			
	Attorney-General's Department—salaries	17,050 00	17,026 33	23 67		
	do —expenses	3,250 00	3,196 97	53 03		
	Education Department—salaries	16,750 00	16,620 00	130 00		
	do —expenses	2,400 00	2,556 43	.....	156 43	26 43
	Crown Lands Department—salaries	40,800 00	40,485 25	314 75		
	do —expenses	11,580 00	9,040 10	2,539 90		
	Bureau of Mines—salaries	4,550 00	4,550 00			
	do —expenses	1,250 00	1,611 71	.....	361 71	
	Public Works Department—salaries	19,100 00	19,100 00			
	do —expenses	1,800 00	1,634 50	165 50		
	Treasury Department—salaries	12,325 00	12,325 00			
	do —expenses	2,570 00	2,639 62	.....	69 62	
	Provincial Auditor's Office—salaries	5,750 00	5,750 00			
	do —expenses	800 00	586 91	213 09		
	License Branch—salaries	8,650 00	8,504 16	145 84		
	do —expenses	650 00	483 92	166 08		
	Secretary and Registrar's Department—salaries	15,800 00	15,800 00			
	do —expenses	3,835 00	3,833 08	1 92		
	Public Institutions—salaries	9,075 00	9,075 00			
	do —expenses	2,700 00	2,686 58	13 42		
	Agricultural Department—salaries	14,250 00	14,250 00			
	do —expenses	1,600 00	1,725 85	.....	125 85	
	Registrar-General's Department—salaries	6,440 00	6,940 00	.....	500 00	
	do —expenses	6,025 00	5,154 32	870 68		
	Immigration Department—salaries	1,350 00	1,350 00			
	do —expenses	300 00	223 35	76 65		
	Board of Health—salaries	5,650 00	5,644 00	6 00		
	do —expenses	2,700 00	2,431 98	268 02		
		224,930 00	221,078 46	5,065 15	1,213 61	

	Official *Gazette*	3,000 00	2,596 69	403 31		
	Queen's Printer's Office—salaries	2,600 00	2,600 00			
	do —expenses	350 00	312 22	37 78		
	Inspection Registry Offices	1,900 00	1,900 00			
	do Insurance do —salaries	1,200 00	4,133 33	66 67		
	do do do —expenses	1,500 00	1,539 91		39 91	
	Special Clerk—salary	1,600 00	1,600 00			
		15,150 00	14,682 15	507 76	39 91	
	Total Civil Government	240,080 00	235,760 61	5,572 91	1,253 52	
Legislation	Salaries	16,100 00	13,333 00	2,767 00		
	Sessional Writers	11,000 00	13,819 35		2,819 35	
	Postages	3,500 00	1,936 94	1,563 06		
	Stationery, printing and binding	25,000 00	34,694 97		9,694 97	
	Printing bills, etc	4,000 00	4,000 00			
	Library	3,000 00	1,727 72	1,272 28		
	Indemnity to Members	57,000 00	56,699 80	300 20		
	Expenses	5,000 00	6,385 98		1,385 98	
	Total Legislation	124,600 00	132,597 76	5,902 54	13,900 30	7,997 76
Administration of Justice	Supreme Court	25,125 00	26,186 51		1,061 51	
	Appeal Court	1,830 00	1,965 67		135 67	
	High Court	3,700 00	4,066 52		366 52	
	Chancery Division	12,320 00	12,945 99		625 99	
	Queen's Bench Division	7,798 00	7,545 50	252 50		
	Common Pleas do	5,985 00	5,966 02	18 98		
		56,758 00	58,676 21	271 48	2,189 69	1,918 21
	Surrogate Judges, etc	25,560 00	24,936 33	623 67		
	Crown Counsel Prosecutions	10,000 00	8,882 44	1,117 56		
	Criminal Justice	155,000 00	158,085 47		3,085 47	
	Inspection Legal Offices	4,600 00	4,167 06	432 94		
	Special Services	5,900 00	3,900 00	2,000 00		
	Inspection Division Courts	4,850 00	4,811 40	38 60		
	Sheriffs' Fees	6,000 00	4,899 05	1,100 95		
	Seals and other Contingencies	300 00	185 90	114 10		
	Constitutional questions	12,000 00	1,982 87	10,017 13		
	Expenses of Judges in grouped counties	1,800 00	1,830 77		30 77	
	Carried forward					

No. 14.—Statement, Etc.—*Continued.*

SERVICE.	SUB-SERVICE.	Appropriation.	Expended.	Unexpended.	Over-expended.	Overdrafts of appropriations.
		$ c.	$ c.	$ c.	$ c.	$ c.
	Brought forward					
Administration of Justice—*Continued*	Ditches and Water Courses Act	500 00	111 50	388 50		
	Shorthand Reporters	10,700 00	10,700 00			
	County Law Associations	1,000 00	1,000 00			
	Deputy-Clerks of Crown and Pleas	17,100 00	17,100 00			
	Local Registrars	5,275 00	5,275 00			
	Land Titles Office	7,350 00	7,192 78	157 22		
	Drainage Act	5,700 00	4,935 63	764 37		
	Local Masters of Titles	3,902 20	3,964 09		61 89	
	District of Algoma	16,500 00	16,194 97	305 03		
	do Thunder Bay	8,800 00	9,905 05		1,105 05	
	do Rainy River	10,054 47	10,825 03		770 56	
	do Nipissing	6,400 00	6,693 59		293 59	
	do Muskoka and Parry Sound	13,200 00	15,056 35		1,856 35	
	do Haliburton	150 00	170 60		20 60	
	do Manitoulin	2,800 00	1,411 20	1,388 80		
	Provincial Police	9,500 00	8,796 51	703 49		
		319,381 67	308,077 26	18,528 69	7,224 28	
	Total Administration of Justice	401,699 67	391,689 80	19,423 84	9,413 97	
Education	Public and Separate Schools	241,776 92	240,525 57	1,251 35		
	Poor do	35,000 00	31,405 21	3,594 79		
	Kindergarten do	3,000 00	1,185 75	1,814 25		
	Night do	1,000 00	175 00	825 00		
	Public Schools, Leaving Examinations	3,000 00	855 00	2,145 00		
	High Schools and Collegiate Institutes	100,000 00	100,000 00			
	Model Schools	9,000 00	9,000 00			
	French Training Institutes	800 00	800 00			
	Training District Teachers	1,000 00	1,000 00			
	Teachers' Institutes	2,300 00	2,262 28	37 72		
	Ontario School of Pedagogy	6,400 00	6,125 30	274 70		
	Inspection of Schools	55,050 00	54,893 44	156 56		
	Departmental Examinations	18,000 00	20,750 01		2,750 01	2,750 01
	Normal and Model Schools, Toronto—salaries	21,540 00	21,474 00	66 00		
	do do do —expenses	1,950 00	2,027 93		77 93	11 93
	do do Ottawa—salaries	20,290 00	20,240 00	50 00		
	do do do —expenses	2,100 00	1,982 19	117 81		

	Library and Museum—salaries	3,150 00	3,150 00			
	do —expenses	2,150 00	1,964 74	185 26		
	School of Practical Science —salaries	12,550 00	12,110 00	440 00		
	do —expenses	3,220 00	4,391 23		1,171 23	731 23
	Mechanics' Institutes	43,350 00	43,159 13	190 87		
	Art Schools, etc	4,900 00	4,715 75	186 25		
	Literary and Scientific	2,200 00	2,200 00			
	Miscellaneous	2,500 00	3,020 33		520 33	520 33
	Superannuated Teachers	59,800 00	63,750 60		3,950 60	3,950 60
	Total Education	656,026 92	653,161 46	11,335 56	8,470 10	
Public Institutions Maintenance						
	Toronto Asylum	100,442 00	99,597 56	844 44		
	Mimico Branch	67,158 60	73,848 92		6,690 92	6,690 92
	London Asylum	130,996 00	130,996 00			
	Kingston do	79,672 00	79,672 00			
	Hamilton do	122,857 00	109,454 29	13,402 71		
	Orillia do	65,002 00	57,632 85	7,369 15		
	Central Prison	64,540 00	56,934 88	7,605 12		
	do industries	58,260 00	65,812 97		7,552 97	
	Boys' Reformatory	38,050 00	38,049 63	37		
	Deaf and Dumb Institute	43,971 00	43,971 00			
	Blind Institute	35,624 00	35,623 41	59		
	Mercer Reformatory	29,206 00	26,842 26	2,363 74		
	Total Public Institutions Maintenance	835,778 00	818,435 77	31,586 12	14,243 89	
Immigration	Agencies in Europe	4,400 00	4,080 66	319 34		
	do Ontario	600 00	600 00			
	Incidentals	5,000 00	3,654 20	1,345 80		
	Total Immigration	10,000 00	8,334 86	1,665 14		
Agriculture	Electoral Division Societies	73,550 00	72,200 00	1,350 00		
	Grants to Associations	18,700 00	18,716 45		16 45	
	Farmers' Institutes	6,200 00	8,191 03		1,991 03	
	Incidentals	8,000 00	8,458 80		458 80	
	Forestry	2,000 00	1,881 23	118 77		
	Tree Planting	1,000 00	773 70	226 30		
	Bureau of Statistics	6,500 00	3,844 11	2,655 89		
	Agricultural College	23,645 00	22,205 70	1,439 30		
	Farm—Farm proper	11,935 00	9,467 71	2,467 29		
	do Experiments	6,140 00	5,534 47	605 53		
	do Dairy	9,350 00	10,093 61		743 61	
	do Poultry	900 00		900 00		
	do Garden	5,075 00	4,644 44	430 56		
	do Mechanical	1,600 00	1,270 86	329 14		
	Total Agriculture	174,595 00	167,282 14	10,522 78	3,209 92	

No. 14.—STATEMENT, ETC.—*Continued.*

SERVICE.	SUB-SERVICE.	Appropriation	Expended.	Unexpended.	Over-expended.	Overdrafts of Appropriations.
		$ c.	$ c.	$ c.	$ c.	$ c.
Hospitals and Charities		151,715 73	151,574 67	141 06		
Repairs and Maintenance	Government House	7,500 00	9,130 55		1,630 55	1,630 55
	Main Building	9,900 00	8,468 82	1,431 18		
	West Wing	1,800 00	1,708 18	91 82		
	East do	3,050 00	3,030 40	19 60		
	Educational Buildings	9,200 00	9,008 68	191 32		
	Simcoe Street premises	2,700 00	2,628 18	71 82		
	Wellington Street do	1,550 00	1,317 89	232 11		
	Miscellaneous	3,208 00	3,699 00		491 00	491 00
	Normal School, Ottawa	3,350 00	3,336 65	13 35		
	School of Practical Science	2,000 00	2,916 00		916 00	916 00
	Agricultural College	6,350 00	7,247 17		897 17	897 17
	do Hall	650 00	649 47	53		
	Osgoode do	8,640 00	7,992 93	647 07		
	Total Repairs and Maintenance	59,898 00	61,133 92	2,698 80	3,934 72	
Public Buildings	Toronto Asylum	200 00	260 30		60 30	
	do Inspector	10,730 00	10,421 79	308 21		
	Mimico Branch	46,000 00	46,917 27		917 27	
	do Inspector	12,612 00	11,060 36	1,551 64		
	Brockville Asylum	70,000 00	20,438 58	49,561 42		
	London Asylum	33,000 00	27,213 15	5,786 85		
	do Inspector	5,750 00	4,691 15	1,058 85		
	Hamilton Asylum	38,500 00	38,566 71		66 71	
	do Inspector	4,000 00	1,272 32	2,727 68		
	Kingston Asylum	9,500 00	7,128 35	2,371 65		
	do Inspector	14,010 00	13,527 80	482 20		
	Orillia Asylum	1,750 00	1,308 15	441 85		
	do Inspector	2,350 00	2,275 91	74 09		
	Boys' Reformatory	1,400 00		1,400 00		
	do Inspector	4,800 00	6,196 36		1,396 36	

	Mercer Reformatory	1,614 00	1,455 82	158 18		
	do Inspector	1,750 00	1,563 01	186 99		
	Central Prison	500 00		500 00		
	do Inspector	47,050 00	46,915 45	134 55		
	Deaf and Dumb Institute	8,800 00	12,185 10		3,385 10	3,373 85
	do Inspector	4,780 00	4,768 75	11 25		
	Blind Institute	9,800 00	8,274 27	1,525 73		
	do Inspector	2,210 00	2,205 46	4 54		
	Agricultural College	29,300 00	27,156 76	2,143 24		
	Education Buildings	9,000 00	7,173 50	1,826 50		
	Normal School, Ottawa	22,500 00	22,496 14	3 86		
	School of Practical Science	10,800 00	10,808 97		8 97	8 97
	Osgoode Hall	3,350 00	275 80	3,074 20		
	Government House	700 00	673 98	26 02		
	Parliament Buildings	60,000 00	44,770 65	15,229 35		
	Algoma District	2,350 00	223 24	2,126 76		
	Thunder Bay District	875 00	160 69	714 31		
	Rainy River do	4,000 00	2,203 22	1,796 78		
	Muskoka do	3,500 00	2,272 98	1,227 02		
	Parry Sound do	2,900 00	1,715 55	1,184 45		
	Nipissing do	9,800 00	5,391 60	4,408 40		
	Miscellaneous	275 00		275 00		
	Total Public Buildings	490,456 00	393,969 14	102,321 57	5,834 71	
Public Works	Maganetawan River Improvement	5,510 00	2,814 41	2,695 59		
	Peninsula Creek	418 00	348 22	69 78		
	Balsam River Works	1,000 00	992 16	7 84		
	Gull and Burnt River Works	500 00	500 31		31	
	Landing Pier, Port Elgin	750 00	750 00			
	Ottawa River Bridge	4,000 00		4,000 00		
	Landing Pier, Southampton	800 00		800 00		
	Misaissippi River Improvement	2,000 00		2,000 00		
	Nation River Improvement	3,000 00	3,000 00			
	Lockmasters' salaries	4,000 00	3,901 10	98 90		
	Maintenance locks, dams, etc	10,000 00	9,289 67	710 33		
	Surveys, inspections, etc	5,000 00	228 98	4,771 02		
	Total Public Works	36,978 00	21,824 85	15,153 46	31	
Colonization Roads		106,050 00	103,655 39	2,394 61		

No. 14.—Statement, Etc.—*Concluded.*

SERVICE.	SUB-SERVICE.	Appropriation	Expended.	Unexpended.	Over-expended.	Overdrafts of appro-priations.
		$ c.	$ c.	$ c.	$ c.	$ c.
Charges on Crown Lands....	Board of Surveyors	400 00	350 00	50 00		
	Agents' salaries	29,650 00	23,438 74	6,211 26		
	Forest Ranging	25,000 00	27,084 90		2,084 90	
	Fire do	27,000 00	27,902 55		902 55	
	Special timber inspection	3,000 00		3,000 00		
	Cullers' Act	500 00	934 30		434 30	
	Quebec Agency	2,050 00	2,273 14		223 14	
	Ottawa do	4,109 00	2,610 22	1,498 78		
	Surveys	39,500 00	43,226 75		3,726 75	
	Miscellaneous	4,000 00	4,043 20		43 20	
	Total Charges on Crown Lands	135,209 00	131,863 80	10,760 04	7,414 84	
Refunds	Education	1,000 00	786 86	213 14		
	Crown Lands	18,500 00	17,492 64	1,007 36		
	Miscellaneous		16 80		16 80	16 80
	Municipalities' Fund	1,459 92	1,459 92			
	Land Improvement Fund	2,155 89	2,155 89			
	Total Refunds	23,115 81	21,912 11	1,220 50	16 80	
Miscellaneous	Charges on Revenue	2,000 00	1,876 24	123 76		
	Industrial School, Mimico	3,500 00	3,500 00			
	Marriage Licenses	500 00	390 99	109 01		
	Ontario Rifle Association	1,000 00	1,000 00			
	do Artillery do	500 00	500 00			
	Expenses of Elections	6,000 00	7,856 45		1,856 45	
	Voters' Lists	2,700 00	2,444 78	255 22		
	Gratuities	15,480 00	15,745 67		265 67	
	Archæological Researches	1,000 00	1,000 00			
	Telephone Service	1,300 00	1,337 32		37 32	
	Removal Fund	7,500 00	6,974 85	525 15		
	Prisoners' Aid Society	1,000 00	1,000 00			
	Sanitary Investigations	500 00	732 16		232 16	

	Outbreak of epidemics ..	1,500 00	623 54	876 46		
	University College	500 00	500 00			
	Vaccine farm	375 00	375 00			
	Factories' Act	4,500 00	4,227 43	272 57		
	Arbitration, Canada and Quebec	10,000 00	1,277 81	8,722 19		
	Drainage Commission	3,000 00	4,381 88		1,381 88	
	Imperial Institute	5,500 00	6,419 48		919 48	
	Dominion Teachers' Association	500 00	500 00			
	Canadian Military Institute	100 00	100 00			
	Columbia Exhibition	15,000 00	14,140 12	859 88		
	Removal to New Buildings	5,000 00	1,441 24	3,558 76		
	Fitting up Library	2,000 00		2,000 00		
	Fish and Game Wardens	2,000 00	2,888 49		888 49	
	Costs *re* Sharp & Lakefield Co	1,250 00	1,250 00			
	Bounty *re* destruction of wolves	500 00	208 00	292 00		
	Centenary celebration, Niagara and Toronto	2,000 00	2,000 00			
	Dehorning Commission	2,000 00	2,770 50		770 50	
	School of Mines, Port Arthur	5,000 00		5,000 00		
	Unprovided	50,000 00	30,354 03	19,645 97		
	Total Miscellaneous	153,705 00	117,815 98	42,240 97	6,351 95	
	Grand Totals	3,599,907 13	3,411,012 26	263,169 90	74,275 03	31,931 76
Aid to Railways			158,189 58			
Annuities			70,200 00			
Drainage Debentures (Municipal)			33,193 64			
Drainage Debentures (Tile)			10,400 00			
New Parliament Buildings			323,232 17			
Land Improvement Fund (Special)			2,049 74			
University of Toronto			60,000 00			
Stationery purchased		14,248 32				
do distributed		13,554 03	694 29			
	Total Expenditure		4,068,351 68			

C. H. SPROULE,
Provincial Auditor.

Provincial Auditor's Office,
Toronto, March 10th, 1893

No. 15.

COMPARATIVE STATEMENT OF EXPENDITURE DURING THE YEARS 1891 AND 1892.

SERVICE.	SUB-SERVICE.	Expenditure, 1891.		Expenditure, 1892.	
		$ c.	$ c.	$ c.	$ c.
Civil Government	Government House—expenses	1,950 00		1,950 00	
	Lieutenant-Governor's office—salaries	2,480 00		2,403 49	
	do expenses	1,500 00		1,500 00	
	Attorney-General's Department—salaries	14,604 50		17,026 33	
	do expenses	3,187 61		3,196 97	
	Education Department—salaries	16,949 00		16,620 00	
	do expenses	1,858 29		2,556 43	
	Crown Lands Department—salaries	39,662 66		40,485 25	
	do expenses	11,071 30		9,040 10	
	Bureau of Mines—salaries			4,550 00	
	do expenses			1,611 71	
	Public Works Department—salaries	18,750 00		19,100 00	
	do expenses	1,293 21		1,634 50	
	Treasury Department—salaries	11,900 00		12,325 00	
	do expenses	2,587 20		2,639 62	
	Provincial Auditor's Office—salaries	5,600 00		5,750 00	
	do expenses	755 27		586 91	
	License Branch—salaries	8,200 00		8,504 16	
	do expenses	548 37		483 92	
	Provincial Secretary's Department—salaries	15,700 00		15,800 00	
	do expenses	2,786 97		3,833 08	
	Public Institutions Office—salaries	9,100 00		9,075 00	
	do expenses	2,823 44		2,686 58	
	Agricultural Department—salaries	14,115 00		14,250 00	
	do expenses	1,408 17		1,725 85	
	Registrar Generals's Department—salaries	6,600 00		6,940 00	
	do expenses	2,772 24		5,154 32	
	Immigration Department—salaries	1,300 00		1,350 00	
	do expenses	205 18		223 35	
	Board of Health—salaries	5,150 00		5,644 00	
	do expenses	3,146 13		2,431 98	
	Miscellaneous:—				
	Official *Gazette*	3,300 01		2,596 69	
	Queen's Printer's Office—salaries	2,500 00		2,600 00	
	do expenses	402 92		312 22	
	Inspection of Registry Offices	1,900 00		1,900 00	

	Inspection of Insurance Offices – salaries	2,900 00		4,133 33	
	do do expenses	518 81		1,539 91	
	Special Clerk *re* Investigations	1,600 00		1,600 00	
			221,126 28		235,760 61
Legislation	Salaries	12,950 00		13,333 00	
	Sessional clerks, etc	13,103 00		13,819 35	
	Postages and cost of House Post Office	4,271 05		1,936 94	
	Stationery, Printing and Binding	21,120 09		34,694 97	
	Printing Bills and distributing Statutes	3,440 57		4,000 00	
	Library	2,587 00		1,727 72	
	Indemnity to Members	59,168 80		56,699 80	
	Contingencies	6,660 52		6,385 98	
			123,601 03		132,597 76
Administration of Justice	Supreme Court of Judicature	23,495 19		26,186 51	
	Court of Appeal	1,739 72		1,965 67	
	High Court	3,729 05		4,066 52	
	Chancery Division	11,661 65		12,945 99	
	Queen's Bench Division	7,453 55		7,545 50	
	Common Pleas Division	5,573 69		5,966 02	
	Surrogate Judges and Local Masters	24,641 95		24,936 33	
	Crown Counsel Prosecutions	6,822 73		8,882 44	
	Criminal Justice	176,293 79		158,085 47	
	Inspection of Legal Offices	4,358 70		4,167 06	
	Special Services	3,150 00		3,900 00	
	Inspection of Division Courts	4,983 70		4,811 40	
	Sheriffs' Fees etc	5,349 87		4,899 05	
	Seals and other contingencies	1,794 40		185 90	
	Constitutional Questions	1,402 40		1,982 87	
	Expenses of Judges in Grouped Counties	1,885 10		1,830 77	
	Ditches and Watercourses Act	121 05		111 50	
	Shorthand Reporters	10,700 00		10,700 00	
	County Law Associations	1,000 00		1,000 00	
	Deputy Clerks of the Crown	16,733 00		17,100 00	
	do Local Registrars	6,625 00		5,275 00	
	Land Titles Act	7,562 51		7,192 78	
	Drainage Act			4,935 63	
	Local Masters of Titles	3,928 83		3,964 09	
	District of Algoma	17,261 82		16,194 97	
	do Thunder Bay	8,547 15		9,905 05	
	do Rainy River	9,277 24		10,825 03	
	do Nipissing	6,281 76		6,693 59	
	do Muskoka and Parry Sound	15,271 48		15,056 35	
	Carried forward	387,645 33		381,311 49	

No. 15.—Comparative Statement.—*Continued.*

SERVICE.	SUB-SERVICE.	Expenditure, 1891.		Expenditure, 1892.	
		$ c.	$ c.	$ c.	$ c.
Administration of Justice.—*Continued*	*Brought forward*	387,645 33		381,311 49	
	District of Haliburton	150 00		170 60	
	do Manitoulin	1,290 00		1,411 20	
	Provincial Police	9,883 44		8,796 51	
			398,968 79		391,689 80
Education	Public and Separate Schools	242,858 29		240,525 57	
	Poor Schools	34,099 61		31,405 21	
	Kindergarten Schools	2,595 00		1,185 75	
	Night Schools	577 05		175 00	
	Grant to French Training Schools			800 00	
	do Training District Teachers			1,000 00	
	Public School Leaving Examinations	1,800 00		855 00	
	High School and Collegiate Institute	99,782 35		100,000 00	
	Model Schools	9,300 00		9,000 00	
	Teachers' Institutes	2,276 35		2,262 28	
	School of Pedagogy	5,846 61		6,125 30	
	Inspection of Schools	54,093 01		54,893 44	
	Departmental Examinations	18,025 17		20,750 01	
	Normal and Model Schools, Toronto, salaries	20,401 00		21,474 00	
	do do expenses	1,901 39		2,027 93	
	do do Ottawa, salaries	19,440 00		20,240 00	
	do do expenses	2,067 77		1,982 19	
	Library and Museum, salaries	3,100 00		3,150 00	
	do do expenses	1,886 81		1,964 74	
	School of Practical Science, salaries	10,545 00		12,110 00	
	do expenses	2,727 05		4,391 23	
	Mechanics' Institutes	41,129 84		43,159 13	
	Art Schools, etc	4,577 57		4,713 75	
	Literary and Scientific	2,200 00		2,200 00	
	Miscellaneous	2,832 96		3,020 33	
	Superannuated Teachers	61,052 40		63,750 60	
			645,115 23		653,161 46

Public Institutions, Maintenance	Toronto Asylum	99,459 03		99,597 56	
	Mimico Branch	54,207 09		73,848 92	
	London Asylum	131,056 98		130,996 00	
	Kingston do	84,138 33		79,672 00	
	Hamilton do	122,851 62		109,454 29	
	Orillia do	56,917 16		57,632 85	
	Central Prison, Toronto	65,945 89		56,934 88	
	do Industries	59,574 86		65,812 97	
	Boys' Reformatory	37,169 58		38,049 63	
	Deaf and Dumb Institute	43,960 21		43,971 00	
	Blind Institute	35,991 93		35,623 41	
	Mercer Reformatory	29,244 00		26,842 26	
			820,516 68		818,435 77
Immigration	Agencies in Europe	4,409 97		4,080 66	
	do Ontario	558 00		600 00	
	Incidentials	1,660 97		3,654 20	
			6,628 94		8,334 86
Agriculture and Arts			149,535 42		167,282 14
Hospitals and Charities			134,992 89		151,574 67
County Houses of Refuge			32,750 00		
Repairs and Maintenance			59,667 39		61,133 92
Public Buildings			412,243 77		393,969 14
Public Works			35,126 67		21,824 85
Colonization Roads			98,312 31		103,655 39
Charges on Crown Lands			171,666 47		131,863 80
Refunds	Education	1,067 37		786 86	
	Crown Lands	25,142 38		17,492 64	
	Municipalities' Fund	1,459 92		1,459 92	
	Land Improvement Fund	2,881 79		2,155 89	
	Miscellaneous	12 28		16 80	
			30,563 71		21,912 11
Miscellaneous	Charges on Revenue	2,021 85		1,876 24	
	Industrial School, Mimico	3,500 00		3,500 00	
	Marriage Licenses	333 74		390 99	
	Ontario Rifle Association	1,000 00		1,000 00	
	do Artillery Association	500 00		500 00	
	Expenses of elections	6,340 32		7,856 45	
	do contested elections	2,932 43			
	Voters' lists	2,721 93		2,444 78	
	Gratuities	18,418 60		15,745 67	
	Archæological Researches	1,000 00		1,000 00	
	Telephone service	1,490 00		1,337 32	
	Removal of patients	7,937 24		6,974 85	
	Prisoners' Aid Society	1,000 00		1,000 00	
	Sanitary investigations	1,105 63		732 16	
	Carried forward	50,301 74		44,358 46	

No. 15.—Comparative Statement.—*Concluded.*

SERVICE.	SUB-SERVICE.	Expenditure, 1891.		Expenditure, 1892.	
		$ c.	$ c.	$ c.	$ c.
	Brought forward	50,301 74		44,358 46	
Miscellaneous.—*Continued.*	Outbreak of epidemics	549 07		623 54	
	University College	500 00		500 00	
	Vaccine Farm	250 00		375 00	
	Factories Act	4,525 86		4,227 43	
	Drainage Commission	2,656 61		4,381 88	
	Mining Commission	1,269 53			
	Teachers' International Convention	2,500 00			
	Dominion Teachers' Association			500 00	
	Imperial Institute	180 50		6,419 48	
	Canadian Military Institute			100 00	
	Columbia Exhibition			14,140 12	
	Removal to new buildings			1,441 24	
	Jamaica exhibit	353 47			
	Arbitration, Canada and Quebec	2,916 62		1,277 81	
	Fish and Game Wardens			2,888 49	
	Costs *re* Sharpe & Lakefield Co			1,250 00	
	Bounty *re* destruction of Wolves			208 00	
	Centenary Celebration, Niagara and Toronto			2,000 00	
	Dehorning Commission			2,770 50	
	Sundry items	3,623 14			
	Unprovided items	18,289 53		30,354 03	
			87,916 07		117,815 98
Aid to Railways			252,179 74		158,189 58
Annuities			59,200 00		70,200 00
Drainage Debentures (Municipal)			50,887 83		33,193 64
Drainage Debentures (Tile)			12,000 00		10,400 00
Land Improvement Fund (Special)			47,111 87		2,049 74
Toronto University			100,000 00		60,000 00
New Parliament Buildings			208,348 43		323,212 17
Stationery			5,103 52		694 29
			4,163,563 07		4,068,951 68

Provincial Auditor's Office,
Toronto, March 10th, 1893.

C. H. SPROULE,
Provincial Auditor.

ESTIMATES

OF THE

PROVINCE OF ONTARIO

FOR THE

YEAR ENDING 31st DECEMBER,

1893.

PRINTED BY ORDER OF THE LEGISLATIVE ASSEMBLY.

TORONTO:
PRINTED BY WARWICK & SONS, 68 AND 70 FRONT STREET WEST.
1893.

SUMMARY

Of the Estimated Expenditure of the Province of Ontario for the Financial Year ending 31st December, 1893.

No.	SERVICES.	Page.	To be Voted. For Current Expenditure.	To be Voted. On Capital Account.	For other purposes.
			$ cts.	$ cts.	$ cts.
I.	Civil Government	5	248,975 00		
II.	Legislation	12	121,700 00		
III.	Administration of Justice	13	400,702 00		
IV.	Education	17	668,746 55		
V.	Public Institutions Maintenance	22	783,614 00		
VI.	Immigration	33	8,160 00		
VII.	Agriculture	34	176,837 00		
VIII.	Hospitals and Charities	37	164,949 34		
IX.	Maintenance and Repairs of Government and Departmental Buildings	38	71,480 00		
X.	Public Buildings	40			
	(1) Repairs		15,330 00		
	(2) Capital Account			476,316 00	
XI.	Public Works	45			
	(1) Repairs		15,100 00		
	(2) Capital Account			18,495 00	
XII.	Colonization Roads	46		95,350 00	
XIII.	Charges on Crown Lands	51	125,309 00		
XIV.	Refund Account	52			23,501 15
XV.	Miscellaneous Expenditure	54	94,620 00		
XVI.	Unforeseen and Unprovided	54	50,000 00		
	Total		2,945,522 89	590,161 00	23,501 15

1. Current Expenditure for 1893	2,945,522 89
2. On Capital Account	590,161 00
3. Other purposes	23,501 15
Amount of Estimates	3,559,185 04

ESTIMATES OF EXPENDITURE

OF THE

PROVINCE OF ONTARIO

FOR THE YEAR 1893.

I.—CIVIL GOVERNMENT.

To be voted per Statement (A)..... $248,975 00

No. of Vote.	A.	1892.	1893.	Compared with Estimates of 1892.	
				Increase.	Decrease.
	To Salaries and Contingencies of the following Departments and Officers.	$ cts.	$ cts.	$ cts.	$ cts.
1	Government House	1,950 00	1,950 00		
2	Lieutenant-Governor's Office	3,980 00	3,980 00		
3	Executive Council and Attorney-General's Department	20,300 00	20,650 00	350 00	
4	Department of Education	19,150 00	19,950 00	800 00	
5	" Crown Lands	58,180 00	58,600 00	420 00	
6	" Public Works	20,900 00	21,650 00	750 00	
7	Treasury Department	43,210 00	42,515 00		695 00
8	Provincial Board of Health	8,350 00	8,350 00		
9	Provincial Secretary's Department	19,635 00	19,755 00	120 00	
10	Public Institutions	11,775 00	15,625 00	3,850 00	
11	Insurance Branch	5,700 00	6,100 00	400 00	
12	Department of Agriculture	15,850 00	18,400 00	2,550 00	
13	Department of Immigration	1,650 00	1,800 00	150 00	
14	Miscellaneous	9,450 00	9,650 00	200 00	
		240,080 00	248,975 00	9,590 00	695 00

I—.CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
		$ cts.	$ cts.
	DETAILS.		
1	GOVERNMENT HOUSE.		
	Expenses.		
	Gardener and Caretaker	500 00	500 00
	Fireman and Assistant Gardener	550 00	550 00
	Assistant Gardeners	900 00	900 00
		1,950 00	1,950 00
2	LIEUTENANT-GOVERNOR'S OFFICE.		
	Salaries.		
	Official Secretary	1,200 00	1,200 00
	Private Secretary	800 00	800 00
	Messenger	480 00	480 00
	Expenses.		
	Contingencies	1,500 00	1,500 00
		3,980 00	3,980 00
3	EXECUTIVE COUNCIL AND ATTORNEY-GENERAL'S DEPARTMENT.		
	Salaries.		
	Attorney-General and Premier	7,000 00	7,000 00
	Clerk of Executive Council and Deputy Attorney-General	3,000 00	3,000 00
	Law Secretary of Department	800 00	800 00
	Clerk and Premier's Secretary	1,750 00	1,750 00
	Assistant Clerk of Executive Council	1,550 00	1,600 00
	Clerk and Shorthand-writer	1,150 00	1,250 00
	Clerk	850 00	900 00
	Clerk	550 00	650 00
	Messenger	400 00	400 00
	Expenses.		
	Messenger and Caretaker in charge of office, cleaning, etc	550 00	600 00
	Fireman	400 00	
	Contingencies	2,300 00	2,300 00
	Furniture, shelving, typewriter, etc	.....	400 00
		20,300 00	20,650 00
4	EDUCATION DEPARTMENT.		
	Salaries.		
	Minister of Education	4,000 00	4,000 00
	Deputy Minister	2,200 00	2,300 00
	Chief Clerk and Accountant	1,600 00	1,600 00
	Clerk and Minister's Secretary	1,300 00	1,350 00
	"	1,250 00	1,300 00
	"	1,250 00	1,300 00

I.—CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	Salaries and Expenses. **1893.**
		$ cts.	$ cts.
4	EDUCATION DEPARTMENT—*Continued.*		
	Salaries.		
	Clerk	1,100 00	1,100 00
	"	1,100 00	1,100 00
	"	750 00	800 00
	Junior Clerk	750 00	800 00
	"	750 00	750 00
	Clerk and Messenger	700 00	750 00
	Stenographer		400 00
	Caretaker, including all allowances for cleaning office, museum, etc	500 00	500 00
	Expenses.		
	Postage	550 00	550 00
	Printing, paper for circulars and blanks	500 00	500 00
	Office stationery and account books	300 00	300 00
	Books, periodicals, papers, law and other reports, and advertising	200 00	200 00
	Contingencies	150 00	150 00
	Travelling and other expenses	200 00	200 00
	CROWN LANDS DEPARTMENT.	19,150 00	19,950 00
	Salaries.		
5	Commissioner	4,000 00	4,000 00
	Assistant Commissioner	2,800 00	2,800 00
	Law Clerk	2,000 00	2,000 00
	Clerk and Commissioner's Secretary $1,250 00	1,250 00	1,400 00
	do Inspector of Agencies, formerly under Inspection of Agencies 150 00		
	Land Sales and Free Grants:—		
	Chief Clerk	1,900 00	1,900 00
	Clerk	1,400 00	1,400 00
	"	950 00	950 00
	"	750 00	800 00
	"	700 00	750 00
	Surveys, Patents and Roads:—		
	Director of Surveys	2,000 00	2,000 00
	Draughtsman	1,300 00	1,300 00
	Clerk of Patents	1,400 00	1,400 00
	Clerk	1,250 00	1,250 00
	"	1,000 00	1,000 00
	Superintendent, Colonization Roads	1,900 00	1,900 00
	Clerk	1,150 00	1,150 00
	"	850 00	850 00
	Woods and Forests:—		
	Chief Clerk	1,650 00	1,750 00
	Clerk	1,350 00	1,400 00
	"	1,100 00	1,100 00
	"	950 00	950 00
	"	850 00	850 00
	"	850 00	850 00
	"	1,000 00	1,000 00
	Accounts:—		
	Accountant and Book-keeper	1,800 00	1,800 00
	Clerk	1,200 00	1,200 00
	"	850 00	850 00
	"	1,100 00	1,100 00
	Registrar (former Registrar $1,600)	1,500 00	1,500 00
		40,800 00	41,200 00

I.—CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
		$ cts.	$ cts.
5	CROWN LANDS DEPARTMENT.—*Continued.*		
	BUREAU OF MINES.		
	Salaries.		
	Director of Mines	2,500 00	2,500 00
	Secretary of Bureau and Shorthand Writer	1,300 00	1,400 00
	Inspector	750 00	750 00
		4,550 00	4,650 00
	Expenses.		
	Printing and Stationery	250 00	250 00
	Books	100 00	100 00
	Travelling expenses	600 00	600 00
	Postage and telegrams	150 00	250 00
	Sundries	150 00	150 00
		5,800 00	6,000 00
	Messenger and Caretaker in charge of office cleaning, etc	500 00	600 00
	Fireman	500 00	.....
	Messenger and telephone boy	500 00	300 00
	Night Watchman	500 00	.....
	Contingencies	9,500 00	8,500 00
	Furniture and furnishings	.....	2,000 00
	Typewriter	80 00	.....
		38,180 00	58,600 00
6	PUBLIC WORKS DEPARTMENT.		
	Salaries.		
	Commissioner	4,000 00	4,000 00
	Architect	2,400 00	2,500 00
	Engineer	2,000 00	2,100 00
	Secretary, Public Works	2,100 00	2,200 00
	Accountant and Law Clerk	1,250 00	1,300 00
	Architectural Draughtsman	1,350 00	1,400 00
	Engineering "	1,300 00	1,350 00
	Assistant Architectural Draughtsman	1,000 00	1,050 00
	Assistant Engineering Draughtsman	1,050 00	1,100 00
	First Clerk and Shorthand Writer	1,100 00	1,200 00
	Clerk and Paymaster of outlying works	1,000 00	1,050 00
	Messenger and Caretaker in charge of office cleaning, etc	550 00	600 00
	Expenses.		
	Contingencies	1,800 00	1,800 00
7	TREASURY DEPARTMENT.	20,900 00	21,650 00
	Salaries.		
	Treasurer	4,000 00	4,000 00
	Assistant Treasurer	2,200 00	2,300 00
	Chief Clerk	1,350 00	1,350 00
	Minister's Secretary and Clerk of Algoma Taxes	1,550 00	1,550 00
	Clerk and Cashier	1,100 00	1,150 00
	Clerk	1,000 00	1,000 00
	"	750 00	750 00
	Messenger and Clerk	375 00	400 00

I.—CIVIL GOVERNMENT.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
7	TREASURY DEPARTMENT—*Continued.*		
	Audit Branch.	$ cts.	$ cts.
	Auditor	2,400 00	2,400 00
	Book-keeper	1,450 00	1,500 00
	Clerk	950 00	950 00
	"	950 00	950 00
	Contingencies	800 00	800 00
	Expenses.		
	Messenger and Caretaker in charge of office cleaning, etc	200 00	600 00
	Fireman (half charged under Provincial Secretary's Department)	250 00	.....
	Contingencies	2,000 00	2,200 00
	Typewriter	120 00	.....
	LICENSE AND ADMINISTRATION OF JUSTICE ACCOUNTS BRANCH.	21,445 00	21,900 00
	LICENSE BRANCH.		
	Salaries.		
	First Officer	1,900 00	2,000 00
	Provincial Inspector and Accountant	1,400 00	1,400 00
	Provincial Inspector (heretofore paid out of appropriation *re* Scott Act).	1,750 00	1,750 00
	Assistant Accountant	1,200 00	1,200 00
	Clerk	1,000 00	1,000 00
	Messenger (Youth)	.....	250 00
	ADMINISTRATION OF JUSTICE ACCOUNTS BRANCH.		
	Salaries.		
	Clerk	1,400 00	1,400 00
	Expenses.		
	Stationery $300 00		
	Postage and telegraph 300 00		
	Sundries 50 00		
		650 00	650 00
		9,300 00	9,650 00
	REGISTRAR-GENERAL'S BRANCH.		
	Salaries.		
	Deputy Registrar-General (also Secretary Board of Health)	500 00	500 00
	Inspector	1,200 00	1,200 00
	Clerk	900 00	900 00
	"	900 00	900 00
	Clerk	900 00	900 00
	"	800 00	800 00
	"	800 00	800 00
	Shorthand Writer, half time	200 00	200 00
	Youth, messenger	240 00	240 00
	Expenses.		
	For supply of blank forms to Postmaster	300 00	300 00
	Indices	200 00	200 00
	Schedules, slips, circulars, stationery and printing	2,000 00	2,000 00
	Postage and express charges	325 00	325 00
	Travelling expenses inspecting District Registrars	500 00	500 00
	Contingencies	200 00	200 00
	To bring up arrears of work	2,500 00	1,000 00
		12,465 00	10,965 00

I.—CIVIL GOVERNMENT—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
8	PROVINCIAL BOARD OF HEALTH.	$ cts.	$ cts.
	Chairman	400 00	400 00
	Secretary	2,000 00	2,000 00
	Laboratory Assistant	1,100 00	1,100 00
	First Clerk	950 00	950 00
	Second "	800 00	800 00
	Printing, binding, stationery, etc	1,200 00	1,200 00
	Per diem allowance of members of Board when attending meetings of Council and Committees	700 00	700 00
	Travelling expenses of members of Board and Secretary	600 00	600 00
	Message and type-writing service	400 00	400 00
	Rent of offices, sanitary analyses	200 00	200 00
		8,350 00	8,350 00
9	PROVINCIAL SECRETARY'S DEPARTMENT.		
	Salaries.		
	Secretary and Registrar	4,000 00	4,000 00
	Assistant Secretary	2,200 00	2,300 00
	Clerk	1,200 00	1,200 00
	"	1,100 00	1,100 00
	"	1,000 00	1,000 00
	Deputy Registrar	1,400 00	1,400 00
	Clerk	900 00	900 00
	"	850 00	850 00
	Clerk and Minister's Secretary	1,250 00	1,300 00
	Clerk and Shorthand Writer	750 00	800 00
	Engrossing Clerk	700 00	700 00
	Messenger and Caretaker in charge of office cleaning, etc	450 00	600 00
	Messenger and telephone boy	.....	180 00
	Expenses.		
	Housekeeper (half charged to Treasury Department)	200 00	.....
	Fireman " "	260 00	.....
	Printing and Binding	800 00	800 00
	Stationery	800 00	800 00
	Postage and telegraph	750 00	750 00
	Comp eting set of Statutes from 1792 down, and binding (revote in part)	275 00	75 00
	Contingencies	750 00	1,000 00
10	PUBLIC INSTITUTIONS.	19,635 00	19,755 00
	Salaries.		
	Inspector of Asylums	2,600 00	2,600 00
	Inspector of Prisons and Charities	2,200 00	2,500 00
	Additional Inspector	.....	2,400 00
	Chief Clerk	1,300 00	1,300 00
	Clerk and Shorthand Writer	1,100 00	1,150 00
	Clerk	850 00	850 00
	Clerk	700 00	750 00
	Messenger, youth	325 00	325 00
	Expenses.	9,075 00	11,875 00
	Travelling	1,100 00	1,100 00
	Postage and telegraph	550 00	550 00
	Printing	500 00	500 00
	Stationery	300 00	300 00
	File boxes, indices, etc	.....	700 00
	Contingencies	250 00	600 00
		2,700 00	3,750 00
		11,775, 00	15,625 00

J.—CIVIL GOVERNMENT—*Concluded.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
		$ cts.	$ cts.
11	INSURANCE BRANCH.		
	Inspector of Insurance and Registrar of Friendly Societies	2,800 00	2,800 00
	Assistant Registrar of Friendly Societies (part in 1892)	600 00	1,000 00
	Clerk	800 00	800 00
	Contingencies, including travelling expenses, printing, books, stationery files, and occasional services of shorthand writer etc	1,500 00	1,500 00
	Receipts from Insurance Companies for license and statement fees $3,800 Receipts from Friendly Societies and insurance agents 12,850 $16,650		
		5,700 00	6,100 00
12	DEPARTMENT OF AGRICULTURE.		
	Salaries.		
	Minister	4,000 00	4,000 00
	Deputy Minister and Secretary of Bureau of Industries	2,200 00	2,200 00
	Assistant Secretary	1,700 00	1,700 00
	Chief Clerk	1,250 00	1,350 00
	Clerk	900 00	900 00
	"	900 00	900 00
	"	900 00	900 00
	"	.....	700 00
	" and Shorthand Writer	1,000 00	1,000 00
	Minister's Secretary	900 00	900 00
	Messenger and caretaker in charge of office cleaning, etc	500 00	600 00
	Fireman (4 months, 7 months last year)	350 00	200 00
	Vault fittings, shelving, etc	.....	1,700 00
		14,600 00	17,050 00
	Expenses.		
	Contingencies	1,250 00	1,350 00
		15,850 00	18,400 00
13	IMMIGRATION DEPARTMENT.		
	Secretary and Intelligence Officer	1,350 00	1,500 00
	Contingencies	300 00	300 00
		1,650 00	1,800 00
14	MISCELLANEOUS.		
	Cost of Official Gazette	3,000 00	3,000 00
	Queen's Printer's Salary	1,400 00	1,400 00
	Assistant Queen's Printer	1,200 00	1,200 00
	Messenger	50 00	50 00
	Stock-taking	200 00	200 00
	Contingencies, including stationery, postage, etc	100 00	100 00
	Inspector of Registry Offices	1,500 00	1,500 00
	Travelling expenses	400 00	400 00
	Clerk for special services re investigations	1,600 00	1,800 00
		9,450 00	9,650 00

II.—LEGISLATION.

To be voted per Statement (A).....$121,700 00

No. of Vote.	A.	1892.	1893.	Compared with Estimates of 1892.	
				Increase.	Decrease.
		$ cts.	$ cts.	$ cts.	$ cts.
15	Legislation	124,600 00	121,700 00	....	2,900 00

No. of Vote.	SERVICE.	Salaries and Expenses.	
		1892.	1893.
15	DETAILS.	$ cts.	$ cts.
	Salaries.		
	Mr. Speaker's salary.....	1,250 00	1,500 00
	Clerk of the House, salary	1,800 00	1,800 00
	One year's salary of late Clerk, Col. Gillmor ...	1,800 00	
	Clerk Assistant and Clerk of Routine.....	1,500 00	1,500 00
	Law Clerk, former salary, $1,000.....	700 00	800 00
	Clerk and Postmaster.....	1,000 00	1,000 00
	Librarian	1,600 00	1,600 00
	Assistant Librarian.....	750 00	750 00
	Accountant of the House and Stationery Clerk (also Queen's Printer) ...	400 00	400 00
	Sergeant-at-Arms	600 00	600 00
	Housekeeper and Chief Messenger	700 00	700 00
	Five Messengers.....	2,550 00	2,550 00
	Fireman ..... } Hereafter under maintenance of	450 00	
	" *and Messenger*..... } Parliament Buildings.....	500 00	
	Nightwatchman ..... }	500 00	
	Sessional Clerks, Writers, Messengers and Pages.....	11,000 00	12,000 00
	Expenses.		
	Postage and Cost of House Post Office.....	3,500 00	2,500 00
	Stationery, including printing paper, printing and binding	25,000 00	25,000 00
	Printing Bills and distributing Statutes.	4,000 00	4,000 00
	Library, for books and binding, etc.....	3,000 00	3,000 00
	Indemnity to Members, including mileage.....	57,000 00	57,000 00
	Subscription to newspapers and periodicals	1,000 00	1,000 00
	Contingencies	4,000 00	4,000 00
		124,600 00	121,700 00

III.—ADMINISTRATION OF JUSTICE.

To be voted per Statement (A) $400,702.00

No. of Vote.	A.	1892.	1893.
		$ cts.	$ cts.
16	Supreme Court of Judicature	56,758 00	56,756 00
17	Surrogate Judges and Local Masters	25,560 00	23,612 00
18	Miscellaneous Criminal and Civil Justice	319,381 67	320,334 00
		401,699 67	400,702 00

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
	DETAILS.	$ cts.	$ cts.
16	SUPREME COURT OF JUDICATURE.		
	Heir and Devisee Commissioners	5,000 00	5,000 00
	Registrar of Supreme Court and Court of Appeal	2,000 00	2,200 00
	Contingencies, printing, etc	75 00	75 00
	Master in Chambers	4,000 00	3,000 00
	Clerk	1,200 00	1,200 00
	Assistant Clerk	850 00	900 00
	Entering Clerk	550 00	550 00
	Contingencies	350 00	350 00
	Master in Ordinary	3,900 00	3,900 00
	Chief Clerk	1,800 00	1,800 00
	Shorthand Writer	800 00	800 00
	(This is besides certain fees, and an allowance as reporter to Judges).		
	Contingencies	200 00	200 00
	Taxing officer pro tem	800 00	
	Taxing Officers	1,900 00	1,900 00
	Junior Taxing Officers, besides commission *re* Shorthand Writer's Fund	1,700 00	1,700 00
	COURT OF APPEAL.		
	Clerk	950 00	1,000 00
	Usher and Messenger	600 00	600 00
	Judge's Library	100 00	100 00
	Contingencies	180 00	180 00
	HIGH COURT.		
	Clerk of the Process and of the Heir and Devisee Commission	1,400 00	1,400 00
	Clerk in his office	1,000 00	1,000 00
	Printing writs, forms, etc. (formerly paid out of general vote)		300 00
	Contingencies	50 00	50 00
	Clerk of Assize	1,200 00	1,200 00
	Contingencies	50 00	50 00

III.—ADMINISTRATION OF JUSTICE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
16	CHANCERY DIVISION.	$ cts.	$ cts.
	Registrar and Judgment Clerk ..... (*The Registrar has also $600 from Suitor's Fund*).	2,100 00	2,100 00
	Assistant Registrar and Judgment Clerk	1,600 00	1,600 00
	Entering Clerk	750 00	750 00
	Clerk of Records and Writs	1,600 00	1,600 00
	Clerk in Records Office	500 00	550 00
	Copying Clerk	400 00	450 00
	Usher (and Stenographer)	600 00	500 00
	Type-writing machine	.....	120 00
	Messenger	400 00	400 00
	Housekeeper	350 00	300 00
	Assistant	300 00	300 00
	Extra services *pro tem*	.....	400 00
	Judge's Library	200 00	200 00
	Surrogate Clerk	2,000 00	2,000 00
	Clerk in Surrogate Office	750 00	750 00
	Contingencies	20 00	20 00
	Contingencies for office of Registrar and Clerk of Records and Writs	750 00	750 00
	QUEEN'S BENCH DIVISION.		
	Registrar ..... (*The Registrar has also $500 from Suitor's Fee Fund*).	2,000 00	2,000 00
	Clerk	1,500 00	1,600 00
	" (*former Clerk had $1,400*)	1,050 00	1,150 00
	"	600 00	650 00
	Housekeeper and Messenger	600 00	600 00
	Two Assistants	588 00	648 00
	Message Youth	250 00	208 00
	Judge's Library	100 00	100 00
	Usher and Messenger for Judges	450 00	550 00
	Usher and Crier	160 00	.....
	Contingencies	500 00	450 00
16	COMMON PLEAS DIVISION.		
	Registrar ..... (*The Registrar has also $200 from Suitor's Fund*).	2,500 00	2,500 00
	Travelling expenses	110 00	110 00
	Clerk	1,300 00	1,300 00
	"	900 00	950 00
	"	.....	520 00
	Usher and Messenger	575 00	575 00
	Judge's Library	100 00	100 00
	Contingencies	500 00	500 00
		56,758 00	56,756 00
17	SURROGATE JUDGES, LOCAL MASTERS, ETC.		
	Allowances payable to Judges of Surrogate upon commutation of fees	12,292 00	11,344 00
	Allowance to Local Masters on commutation of their fees	13,268 00	12,268 00
		25,560 00	23,612 00
18	MISCELLANEOUS CRIMINAL AND CIVIL JUSTICE.		
	Crown Counsel	10,000 00	10,000 00
	Administration of Criminal Justice	155,000 00	155,000 00
	Inspector of Legal Offices	2,800 00	2,400 00
	Clerk and Shorthand Writer	1,000 00	1,050 00
	Travelling and other expenses	800 00	700 00
	Salaries, Provincial Detectives ..... (*3rd Detective last year was paid for nine months*).	3,750 00	4,000 00
	Allowance for clothing do ..(*Allowance made for two only last year*).	150 00	225 00
	Special services	2,000 00	2,000 00
		175,500 00	175,375 00

III.—ADMINISTRATION OF JUSTICE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
18	DIVISION COURTS INSPECTION.	$ cts.	$ cts.
	Inspector of Division Courts	1,800 00	1,800 00
	Clerk	1,000 00	1,000 00
	"	1,000 00	1,000 00
	Travelling expenses and contingencies	1,050 00	1,200 00
	(Receipts from fees, 1892, $6,865.06).		
		4,850 00	5,000 00
	MISCELLANEOUS JUSTICE.		
	To pay Sheriffs, Criers and Constables in attending Courts of Chancery and County Courts, Deputy Clerks of the Crown and Pleas attending Assizes, and their postages, etc.	6,000 00	6,000 00
	Seals and other contingencies	300 00	300 00
	Litigation of Constitutional questions	12,000 00	12,000 00
	Expenses of County Judges in grouped Counties	1,800 00	1,800 00
	Judge's travelling expenses *re* Ditches and Watercourses Act	500 00	500 00
	For employment of Shorthand Reporters of evidence on trials at the Assizes and Election Courts	10,700 00	10,700 00
	Towards outer Counties' Libraries (Circuit and County Judges)	1,000 00	1,000 00
		32,300 00	32,300 00
	Deputy Clerks of the Crown	17,100 00	17,100 00
	" " " as Local Registrars	5,275 00	5,275 00
	LAND TITLES OFFICE.	22,375 00	22,375 00
	Master of Titles	3,800 00	3,800 00
	Chief Clerk	1,000 00	1,000 00
	Clerk	800 00	800 00
	"	800 00	800 00
	" *(six months)*	350 00	...
	Youth	300 00	312 00
	Registers and Index Books	200 00	100 00
	Stationery and contingencies	100 00	100 00
	Additional iron shelving and furniture	...	100 00
	The fees received since the establishment of the office are as follows: In 1885 and 1886 together, $2,656.12; in 1887, $4,307.51; in 1888, $5,855.90; in 1889, $10,119.78; in 1890, $9,062; in 1891, $6,470.10 and in 1892, $4,863.	7,350 00	7,012 00
	OFFICES OF LOCAL MASTERS OF TITLES IN THE DISTRICTS.		
	Master at Sault Ste. Marie	1,037 45	512 00
	" Parry Sound	587 55	390 00
	" Bracebridge	475 10	364 00
	" Port Arthur	670 00	718 00
	" North Bay	332 10	456 00
	" Rat Portage	...	200 00
	Registry and Index Books	300 00	300 00
	Forms and other contingencies	390 00	500 00
	Travelling expenses	200 00	200 00
	Rent of office at Sault Ste. Marie for 1893, and for ten months of 1892, at $6 a month	...	132 00
	Safe for office at Sault Ste. Marie	...	250 00
	DRAINAGE ACT.	3,902 20	4,022 00
	Salary of Referee	3,500 00	3,500 00
	" Clerk and Shorthand Writer	1,200 00	1,200 00
	Expenses	1,000 00	1,000 00
		5,700 00	5,700 00

III.—ADMINISTRATION OF JUSTICE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
18	*District of Algoma.*	$ cts.	$ cts.
	Sheriff's salary	1,400 00	1 400 00
	Registrar's salary	800 00	800 00
	Clerk of the District Court	600 00	600 00
	Magistrate at Sudbury	1,400 00	1,400 00
	Magistrate at Algoma Mills	1,400 00	1,400 00
	Administration of Justice, etc	10,900 00	10,900 00
		16,500 00	16,500 00
	District of Thunder Bay.		
	Sheriff's salary	1,000 00	1,000 00
	House, fuel and light	250 00	250 00
	Clerk of the District Court	450 00	450 00
	Chief Constable	400 00	400 00
	Police Magistrate at Fort William and West including expenses	800 00	1,000 00
	Travelling expenses	200 00	.....
	Police Magistrate at Port Arthur and East including expenses (last year's vote was for expenses only)	400 00	800 00
	Administration of Justice, etc	5,900 00	5,900 00
		9,400 00	9,800 00
	District of Rainy River.		
	Stipendiary Magistrate, salary	1,600 00	1,600 00
	Sheriff.salary	1,000 00	1,000 00
	Registrar and Clerk of District Court	700 00	700 00
	Administration of Justice	6,154 47	6,000 00
		9,454 47	9,300 00
	District of Nipissing.		
	Stipendiary Magistrate for Southern Nipissing, salary	1,600 00	1,600 00
	" " Northern Nipissing, salary	1,300 00	1,300 00
	Administration of Justice, etc	3,500 00	3,500 00
		6,400 00	6,400 00
	District of Muskoka and Parry Sound.		
	Stipendiary Magistrate, Parry Sound	1,800 00	1,800 00
	Sheriff (Muskoka) salary	500 00	500 00
	" (Parry Sound), salary	500 00	500 00
	Clerk of the Peace and District Attorney, salary	400 00	400 00
	Police Magistrate, salary and travelling expenses	500 00	500 00
	Clerk, District Court Parry Sound	450 00	450 00
	Clerk (Bracebridge)	450 00	450 00
	Administration of Justice, etc	8,600 00	8,600 00
		13,200 00	13,200 00
	Provisional County of Haliburton.		
		.....	800 00
	Police Magistrate for Haliburton and parts north, including expenses	150 00	150 00
	Administration of Justice		
		150 00	950 00

III.—ADMINISTRATION OF JUSTICE.—*Concluded*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
18	*District of Manitoulin.*	$ cts.	$ cts.
	Administration of Justice	2,000 00	2,000 00
	Salary of Registrar of Deeds and Master of Titles, Manitoulin	500 00	600 00
	Salary of Clerk of District Court and Surrogate Court, Manitoulin Island.	300 00	300 00
		2,800 00	2,900 00
	Provincial Police on Niagara and Detroit Rivers.		
	Salary of Police Magistrate on Niagara River	1,200 00	1,200 00
	Administration of Justice "	5,800 00	5,800 00
	" " Detroit River	2,500 00	2,500 00
		9,500 00	9,500 00

IV.—EDUCATION.

To be voted per Statement (A) ..... $668,746 55.

No. of Vote.	A.	1892.	1893.
	Grants to Schools.	$ cts.	$ cts.
19	Public and Separate Schools	241,776 92	242,197 [illegible]
20	Schools in Unorganized Districts and Poor Schools	35,000 00	35,000 00
21	Kindergarten Schools	3,000 00	4,286 25
22	Night Schools	1,000 00	1,518 00
23	Public School Leaving Examinations	3,000 00	3,000 00
24	High Schools and Collegiate Institutes	100,000 00	100,000 00
25	Model Schools	9,000 00	9,150 00
26	Special grant to French Training School	800 00	800 00
27	" Public Schools in unorganized districts for training District Teachers	1,000 00	1,000 00
28	Teachers' Institutes	2,300 00	2,400 00
29	*Ontario School of Pedagogy* (grant)	1,500 00	
30	Inspection of Schools	55,050 00	58,300 00
31	Departmental Examinations	18,000 00	19,150 00
32	Ontario School of Pedagogy	1,000 00	6,750 00
33	Normal and Model Schools, Toronto	23,490 00	23,540 00
34	" " Ottawa	22,340 00	22,440 00
35	Library and Museum	5,300 00	5,350 00
36	School of Practical Science	15,770 00	18,865 00
37	Mechanics' Institutes, Art Schools, Literary and Scientific	50,450 00	51,700 00
38	Miscellaneous	2,500 00	2,000 00
39	Superannuated and Public and High School Teachers	59,800 00	61,200 00
		656,026 92	668,746 55

IV.—EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses 1892.	Salaries and Expenses **1893.**
	GRANTS TO SCHOOLS.	$ cts.	$ cts.
	DETAILS.		
19	PUBLIC AND SEPARATE SCHOOLS	240,000 00	240,000 00
	Add from Municipalities Fund	1,776 92	2,197 30
		241,776 92	242,197 30
20	SCHOOLS IN UNORGANIZED DISTRICTS AND POOR SCHOOLS	35,000 00	35,000 00
21	KINDERGARTEN SCHOOLS, re-vote 1892, $1,286.25	3,000 00	4,286 25
22	NIGHT SCHOOLS, re-vote 1892, $518	1,000 00	1,518 00
23	PUBLIC SCHOOL LEAVING EXAMINATIONS	3,000 00	3,000 00
24	129 HIGH SCHOOLS AND COLLEGIATE INSTITUTES including special to Port Arthur and Gravenhurst (125 last year)	100,000 00	100,000 00
25	61 MODEL SCHOOLS (60 last year)	9,000 00	9,150 00
26	SPECIAL GRANT TO FRENCH-ENGLISH TRAINING SCHOOL	800 00	800 00
27	GRANT TO PUBLIC SCHOOLS IN UNORGANIZED DISTRICTS FOR TRAINING DISTRICT TEACHERS	1,000 00	1,000 00
28	TEACHERS' INSTITUTES	2,300 00	2,400 00
29	*Ontario School of Pedagogy (arrears of 1891, $500)*	1,500 00	.....
30	INSPECTION OF SCHOOLS.		
	6,200 Public Schools (including Model Schools) 6,100 last year	30,500 00	31,000 00
	Public Schools in cities and towns separated from county	5,500 00	6,000 00
	Two Inspectors of High Schools	5,000 00	5,000 00
	Two Inspectors of Separate Schools	3,400 00	3,400 00
	Two Inspectors in Unorganized Districts	3,000 00	3,000 00
	One Inspector of Model Schools	1,850 00	1,850 00
	One Director of Teachers' Institutes	.....	1,850 00
	Allowance to Inspectors in Muskoka, Bruce and Hastings	1,100 00	1,100 00
	Travelling expenses eight Inspectors (7 last year)	2,800 00	3,200 00
	Stationery, postage and incidentals	1,900 00	1,900 00
		55,050 00	58,300 00
31	DEPARTMENTAL EXAMINATIONS.		
	Examiners for High School Entrance and Leaving, Normal and County Model School examinations (reimbursed by fees)	14,500 00	15,500 00
	Stationery, postage and incidentals	500 00	500 00
	Salary of Printer	950 00	950 00
	Material for printing office and assistant	1,100 00	1,100 00
	Salary of Clerk	750 00	800 00
	Secretary Joint Board of Examiners	200 00	300 00
32	ONTARIO SCHOOL OF PEDAGOGY.	18,000 00	19,150 00
	Principal and Professor of Psychology	3,000 00	3,000 00
	Lecturers on Methods	500 00	2,500 00
	Instructor in Reading and Elocution	400 00	250 00
	Instructors in Stenography and Hygiene	250 00	250 00
	Instructor in Drill and Calisthenics	250 00	250 00
	Printing and incidentals	500 00	500 00
		4,900 00	6,750 00

IV.—EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
33	NORMAL AND MODEL SCHOOLS, TORONTO.	$ cts.	$ cts.
	Salaries.		
	The Principal	2,500 00	2,500 00
	Second Master	2,000 00	2,000 00
	Drawing Master	800 00	850 00
	French Teacher	150 00	150 00
	Music Teacher	900 00	950 00
	Drill and Gymnastic Master	530 00	530 00
	Head Master of Boys' Model School	1,500 00	1,500 00
	Four Assistants "	3,650 00	3,700 00
	Head Mistress of Girl's Model School	1,100 00	1,150 00
	Four Assistants "	2,950 00	3,150 00
	Teacher of Kindergarten	900 00	850 00
	Assistant Teacher of Kindergarten	480 00	480 00
	Teacher of Reading and Elocution	300 00	
	Head Gardener (including $250 in lieu of house)	660 00	660 00
	Assistant Gardener	400 00	400 00
	First Engineer, including $200 for house and fuel	610 00	610 00
	Second "	400 00	400 00
	Third "	400 00	400 00
	Janitor of Normal School, including cleaning	510 00	510 00
	" Boys' Model School "	400 00	400 00
	" Girls' " "	400 00	400 00
		21,540 00	21,590 00
	Expenses.		
	Text and reference book for Masters, and reading room for Students	200 00	200 00
	Stationery, chemicals and contingencies	1,000 00	1,000 00
	Text-books for Model School pupils	600 00	600 00
	Supplies for Kindergarten	150 00	150 00
		23,490 00	23,540 00
34	NORMAL AND MODEL SCHOOLS, OTTAWA.		
	Salaries.		
	The Principal	2,500 00	2,500 00
	Second Master	2,000 00	2,000 00
	Drawing Master	900 00	950 00
	French Teacher	150 00	150 00
	Music Master	900 00	950 00
	Clerk and Accountant	600 00	600 00
	Drill and Gymnastic Master	300 00	300 00
	Head Master of Boys' Model School	1,500 00	1,500 00
	Three Assistants "	3,050 00	3,150 00
	Head Mistress of Girl's Model School	1,100 00	1,150 00
	Three Assistants "	2,450 00	2,500 00
	Teacher of Kindergarten	900 00	950 00
	Assistant Teacher of Kindergarten	480 00	480 00
	Teacher of Reading and Elocution	300 00	
	First Engineer and Gardener	600 00	600 00
	Second " "	450 00	450 00
	Laborer on grounds	400 00	400 00
	Janitor, Normal School, salary with allowance for cleaning	510 00	510 00
	" Boys' Model School, salary	400 00	400 00
	" Girls' " "	400 00	400 00
	Night Watchmen	400 00	400 00

IV.—EDUCATION.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
		$ cts.	$ cts
34	NORMAL AND MODEL SCHOOLS, OTTAWA—*Continued.*		
	Expenses.		
	Text and reference books for masters, and reading room for students	200 00	200 00
	Stationery, chemicals and supplies	1,150 00	1,150 00
	Text-books for Model School pupils	600 00	600 00
	Supplies for Kindergarten	150 00	150 00
		22,390 00	22,440 00
35	LIBRARY AND MUSEUM.		
	Salaries and Expenses.		
	Librarian and Historiographer	2,000 00	2,000 00
	Assistant Librarian	550 00	550 00
	Clerk	600 00	650 00
	Postage and stationery	100 00	100 00
	Incidentals and purchases	650 00	650 00
	Binding books and periodicals	200 00	200 00
	Educational and technical books for reference	500 00	500 00
	Binding pamphlets, Library	200 00	200 00
	Museum	500 00	500 00
		5,300 00	5,350 00
36	SCHOOL OF PRACTICAL SCIENCE.		
	Salaries.		
	Professor in Engineering and Principal	2,800 00	2,800 00
	" Applied Chemistry	1,500 00	1,500 00
	" Metallurgy and Assaying	1,800 00	1,800 00
	Lecturer in Surveying	1,200 00	1,400 00
	" Architecture	1,200 00	1,400 00
	" Electrical Engineering	1,200 00	1,400 00
	" *Sanitary* "	1,200 00	
	Fellow in Civil Engineering	500 00	500 00
	" Mechanical "		500 00
	" Chemistry	500 00	500 00
	" Metallurgy and Assaying (half year in 1892)	250 00	500 00
	" Surveying		500 00
	Attendant in Chemistry	200 00	500 00
	" Metallurgy	200 00	200 00
	Caretaker, including allowance for house	750 00	750 00
	Engineer	720 00	720 00
	Fireman	400 00	400 00
	Expenses.	14,420 00	15,370 00
	Chemical Laboratory	500 00	600 00
	Electrical "		500 00
	Assaying "	200 00	400 00
	Physical "	200 00	200 00
	Engineering "	500 00	500 00
	Printing, advertising and incidentals	600 00	600 00
	Telephone	50 00	50 00
	Arrears, 1892		645 00
		16,470 00	18,865 00

IV.—EDUCATION—*Concluded.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
37	MECHANICS' INSTITUTES, ART SCHOOLS, LITERARY AND SCIENTIFIC.	$ cts.	$ cts.
	Superintendent Mechanics' Institutes	1,700 00	1,700 00
	Clerk " "	650 00	700 00
	258 Mechanics' Institutes (242 in 1892)	41,000 00	42,000 00
	Art School Examinations	1,200 00	1,200 00
	Ontario Society of Artists	500 00	500 00
	Eight Art Schools	3,200 00	3,200 00
	Canadian Institute, Toronto	1,000 00	1,000 00
	Institut Canadien, Ottawa	400 00	400 00
	Ottawa Literary and Scientific Society	400 00	400 00
	Hamilton Association	400 00	400 00
	Astronomical Society, Toronto		200 00
		50,450 00	51,700 00
38	MISCELLANEOUS.		
	For cost of Minister's Report	500 00	500 00
	School Registers	1 000 00	1,000 00
	School Act to be sold to Trustees, etc	1,000 00	500 00
		2,500 00	2,000 00
39	SUPERANNUATED PUBLIC AND HIGH SCHOOL TEACHERS.		
	Annual Retiring allowance to Teachers and Inspectors	59,500 00	61,000 00
	Medical Examination fees, printing paper and incidentals	300 00	300 00
		59,800 00	61,300 00

V.—PUBLIC INSTITUTIONS MAINTENANCE.

To be voted per Statement (A) $783,614 00

No. of Vote.	A	Voted for 1892.	To be Voted for **1893.**	Compared with Estimate of 1892.	
				Increase.	Decrease.
		$ cts.	$ cts.	$ cts.	$ cts.
40	Asylum for Insane, Toronto	100,442 00	99,961 00	.....	481 00
41	Mimico Branch.....	67,158 00	73,168 00	6,010 00	
42	Asylum for Insane, London.....	130,996 00	130,328 00	.....	668 00
43	" " Kingston	79,672 00	80,273 00	601 00	
44	" " Hamilton.....	122,857 00	115,921 00	.....	6,936 00
45	" Idiots, Orillia.....	65,002 00	62,261 00	....	2,741 00
46	Central Prison, Toronto.....	122,800 00	75,145 00	.....	47,655 00
47	Ontario Reformatory for Boys, Penetanguishene	38,050 00	37,350 00	....	700 00
48	Institution for the Deaf and Dumb, Belleville.	43,971 00	45,419 00	1,448 00	
49	" " Blind, Brantford	35,624 00	35,432 00	... .	192 00
50	Andrew Mercer Reformatory for Women and Refuge for Girls, Toronto.....	29,206 00	28,356 00	.....	850 00
		835,778 00	783,614 00	8,059 00	60,223 00

No. of Vote.	SERVICE.		Salaries and Expenses.	
			1892.	**1893.**
40	DETAILS.			
	ASYLUM FOR INSANE, TORONTO.		$ cts.	$ cts.
	(For 710 patients.)			
	Salaries.	No. of Officers and Employees.		
	Medical Superintendent	1	2,000 00	2,000 00
	Assistant "	1	1,100 00	1,000 00
	Second Assistant	1	800 00	800 00
	Bursar	1	1,400 00	1,400 00
	Bursar's Clerk.....	1	675 00	725 00
	Steward.....	1	750 00	750 00
	Storekeeper	1	800 00	800 00
	Assistant Storekeeper.	1	700 00	700 00
	Engineer...	1	740 00	740 00
	Stokers	3	828 00	888 00
	Engine-driver for laundry	1	300 00	300 00
	Bricklayer and Mason	1	625 00	625 00
	Carpenters	2	1,150 00	1,150 00
	Gardener	1	400 00	400 00
	Assistant Gardener.....	1	300 00	300 00
	Porter	1	275 00	276 00
	Baker	1	400 00	400 00
	Assistant Baker	1	216 00	250 00
	Tailor.....	1	600 00	600 00
	Teamster	1	240 00	240 00
	Night Watchers.....	4	1,008 00	1,008 00
	Chief Attendants (8 in 1892).....	9	2,400 00	2,700 00
	Ordinary Male Attendants (19 in 1892).....	18	4,560 00	4,320 00
	Painter and Jobber.....	1	575 00	575 00
	Attendant tradesman.....	1	.....	300 00

V.—PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	No. of Officers and Employees.	Salaries and Expenses. 1892.	Salaries and Expenses. 1893.
40	ASYLUM FOR THE INSANE, TORONTO—*Continued.*		$ cts.	$ cts.
	FEMALES.			
	Matron	1	500 00	500 00
	Assistant Matron	1	300 00	300 00
	Chief Attendants	6	996 60	996 00
	Ordinary "	21	3,150 00	3,150 00
	Night "	4	600 00	660 00
	Trained Nurse	1		210 00
	Cooks	5	672 00	708 00
	Laundresses	6	684 00	804 00
	Housemaids	4	396 00	444 00
	Seamstress	1	132 00	132 00
	Dairymaid	1	120 00	120 00
		107	30,392 00	31,211 00
	Expenses.			
	Medicine and Medical comforts		550 00	650 00
	Fuel		10,400 00	10,000 00
	Butchers' meat, fish and fowl		15,000 00	14,000 00
	Flour, meal, etc		6,500 00	6,000 00
	Butter		3,500 00	4,000 00
	Gas and Oil		2,500 00	3,000 00
	Water Supply		2,800 00	3,000 00
	Groceries		9,500 00	9,500 00
	Fruit and vegetables		4,000 00	3,500 00
	Bedding, clothing and shoes		4,500 00	4,500 00
	Furniture and furnishings		1,500 00	1,500 00
	Laundry, soap and cleaning		1,200 00	1,500 00
	Farm, feed and fodder		4,000 00	3,500 00
	Miscellaneous		900 00	900 00
	Repairs and alterations		2,500 00	2,500 00
	Printing, postage and stationery		700 00	700 00
			100,442 00	93,961 00
41	MIMICO BRANCH.			
	(For 560 patients.)			
	Salaries.	No. of Officers and Employees.		
	Assistant Superintendent	1	1,400 00	1,400 00
	Assistant Physician	1	800 00	900 00
	Bursar	1	1,000 00	1,000 00
	Storekeeper	1		600 00
	Steward	1	500 00	500 00
	Farmer and Assistant	2	652 00	702 00
	Engineer at pump house	1	500 00	500 00
	Assistant Engineer	1	300 00	350 00
	Electrician	1	300 00	300 00
	Attendant at sewage works	1	240 00	240 00
	Carpenter	1	500 00	500 00
	Jobber and Carpenter	1	144 00	180 00
	Baker	1	400 00	400 00
	Firemen	3	720 00	720 00
	Male Supervisors	6	1,440 00	1,440 00
	Male Attendants	11	2,640 00	2,640 00
	Gardener	1	300 00	300 00
	Night Watches (only 1 in 1892)	2	240 00	480 00
	Messenger	1	240 00	240 00
	Laundryman	1		240 00
	Matron	1	250 00	250 00
	Assistant Matron	1	250 00	250 00
	Supervisors	5	810 00	810 00
	Attendants	12	1,800 00	1,800 00
	Laundresses (3 in 1892)	2	360 00	564 00
	Night Watches	2	300 00	300 00
	Cooks	3	408 00	432 00
	Tailoress	1		360 00
	Seamstress	1	264 00	120 00
		67	16,858 00	18,318 00
	Expenses.			
	Medicine and medical comforts		560 00	550 00
	Fuel		13,000 00	13,000 00

V.—PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.		Salaries and Expenses. 1892.	Salaries and Expenses. 1893.
41	INSANE ASYLUM, TORONTO (MIMICO BRANCH)—*Continued.*		$ cts.	$ cts.
	Expenses—Continued.			
	Butcher's meat, fish and fowl		10,000 00	12,000 00
	Flour, meal, etc		5,000 00	4,500 00
	Butter		2,400 00	2,500 00
	Lighting		700 00	700 00
	Groceries		7,000 00	6,800 00
	Fruit and vegetables		1,500 00	1,500 00
	Bedding, clothing and shoes		5,000 00	4,000 00
	Furniture and furnishings		1,200 00	3,500 00
	Farm feed and fodder		1,500 00	2,000 00
	Printing, postage and stationery		300 00	300 00
	Laundry, soap, etc		700 00	1,000 00
	Miscellaneous		1,000 00	1,000 00
	Repairs and alterations		500 00	1,500 00
42	ASYLUM FOR THE INSANE, LONDON.		67,158 00	73,168 00
	(For 1,008 patients.)			
	Salaries.	No. of Officers and Employees.		
	Medical Superintendent	1	2,000 00	2,000 00
	First Assistant Physician	1	1,100 00	1,100 00
	Second "	1	1,000 00	1,000 00
	Third "	1	700 00	750 00
	Bursar	1	1,400 00	1,400 00
	Bursar's Clerk	1	800 00	800 00
	Storekeeper	1	800 00	800 00
	Assistant Storekeeper	1	600 00	600 00
	Engineer	1	700 00	740 00
	Assistant Engineer	1	400 00	400 00
	2nd do	1	.....	300 00
	Stokers	7	1,776 00	1,776 00
	Bricklayer and Plasterer	1	600 00	600 00
	Carpenters	2	1,050 00	1,050 00
	Tailor	1	460 00	460 00
	Gardener	1	450 00	450 00
	Assistant Gardener	1	300 00	300 00
	Butcher	1	240 00	240 00
	Yardman	1	216 00	216 00
	Porter and Messenger	1	216 00	216 00
	Baker	1	400 00	400 00
	Assistant Baker	1	216 00	216 00
	Farmer	1	600 00	600 00
	Assistant Farmer	1	360 00	360 00
	Ploughmen	2	432 00	432 00
	Chief Attendants	3	936 00	936 00
	Supervisors	8	2,148 00	2,148 00
	Ordinary Male Attendants (30 in 1892)	32	7,260 00	7,440 00
	Cowman	1	216 00	216 00
	Laundryman	1	240 00	240 00
	FEMALES.			
	Matron	1	500 00	500 00
	Assistant Matron	1	300 00	300 00
	Chief Attendant	1		
	Nurse	1		
	Supervisors	6	5,586 00	5,578 00
	Ordinary Female Attendants	24		
	Night Attendants	3		
	Cooks and Assistant Cooks	5	660 00	696 00
	Laundresses	4	564 00	564 00
	Housemaids (9 in 1892)	10	1,032 00	1,152 00
	Dairymaid	1	120 00	120 00
	Seamstresses (only 1 in 1892)	2	144 00	288 00
	Portress, type writer, etc	1	144 00	144 00
		138	36,666 00	37,528 00

V.—PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.		Salaries and Expenses. 1892.	Salaries and Expenses. 1893.
			$ cts.	$ cts.
42	ASYLUM FOR THE INSANE, LONDON—*Continued.*			
	Expenses.			
	Medicine and medical comforts		700 00	700 00
	Fuel		15,500 00	15,000 00
	Butchers' meat, fish and fowl		15,000 00	16,000 00
	Flour		8,500 00	7,500 00
	Butter		7,000 00	7,000 00
	Gas and oil		2,500 00	3,000 00
	Groceries		11,000 00	12,000 00
	Fruit and Vegetables		600 00	600 00
	Bedding, clothing and shoes		15,500 00	13 000 00
	Furniture and furnishings		3,500 00	4,000 00
	Laundry, soap and cleaning		2,000 00	2,000 00
	Farm, feed and fodder		4,500 00	4,000 00
	Miscellaneous		2,000 00	2,000 00
	Repairs and alterations		5,000 00	5,000 00
	Printing, postage and stationery		1,000 00	1,000 00
			130,966 00	130,328 00
43	ASYLUM FOR THE INSANE, KINGSTON.			
	(For 550 Patients.)	No. of Officers and Employés.		
	Salaries.			
	Medical Superintendent	1	2,000 00	2,000 00
	Assistant Physician	1	1,100 00	1,100 00
	Second Assistant Physician	1	750 00	800 00
	Bursar	1	1,300 00	1,300 00
	Clerk	1	800 00	800 00
	Steward	1	600 00	600 00
	Storekeeper	1	700 00	750 00
	Engineer	1	740 00	740 00
	Assistant Engineer	1	300 00	300 00
	Carpenter	1	500 00	550 00
	Baker	1	400 00	450 00
	Tailor	1	500 00	500 00
	Chief Attendant	1	.....	336 00
	Supervisors 7 Attendants 14 Night Watches 2	23	7,036 00	7,700 00
	Farmer	1	400 00	400 00
	Gardener	1	400 00	400 00
	Butcher	1	240 00	240 00
	Stokers	2	425 00	425 00
	Assistant Gardener	1	360 00	400 00
	Laundryman	1	240 00	240 00
	Stableman and Messenger	1	216 00	216 00
	FEMALES.			
	Matron	1	450 00	500 00
	Assistant Matron	1	275 00	300 00
	Trained Nurse for Infirmary	1	210 00	210 00
	Seamstress	1	120 00	120 00
	Supervisors 6 Attendants 13	19	2,982 00	2,832 00
	Porteress	1	120 00	120 00
	Cooks	2	408 00	300 00
	Laundresses	2	264 00	276 00
	Servants, Dairymaid, etc	4	336 00	468 00
		76	24,172 00	25,373 00

V.—PUBLIC INSTITUTIONS MAINTENANCE. —*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
		$ cts.	$ cts.
43	ASYLUM FOR THE INSANE, KINGSTON—*Continued.*		
	Expenses.		
	Medicines	600 00	600 00
	Butchers' meat, fish and fowl	10,000 00	10,000 00
	Butter	3,000 00	3,000 00
	Flour, bread, etc	5,500 00	5,500 00
	Fuel	11,000 00	11,000 00
	Gas and oil	800 00	800 00
	Groceries	7,500 00	7,500 00
	Fruit and vegetables	2,000 00	1,500 00
	Bedding, clothing and shoes	4,500 00	4,500 00
	Furniture and furnishings	1,200 00	1,200 00
	Laundry, soap and cleaning	900 00	1,200 00
	Printing, postage and stationery	900 00	900 00
	Farm, feed and fodder	2,500 00	3,000 00
	Repairs	2,400 00	2,400 00
	Miscellaneous	1,500 00	1,800 00
	Unpaid rent of Regiopolis College	1,200 00	.....
		79,672 00	80,273 00
44	ASYLUM FOR THE INSANE, HAMILTON.		
	(For 950 patients.)		
	Salaries. — No. of Officers and Employés.		
	Medical Superintendent	1	2,000 00	2,000 00
	Assistant Physician	1	1,100 00	1,100 00
	Second Assistant Physician (in new building)	1	900 00	1,000 00
	Third do	1	800 00	800 00
	Bursar	1	1,400 00	1,400 00
	Bursar's Clerk	1	800 00	800 00
	Storekeeper	1	800 00	800 00
	Engineer	1	650 00	700 00
	Assistant Engineer	1	300 00	350 00
	Stokers	5	1,200 00	1,200 00
	Carpenters	2	1,050 00	1,050 00
	Baker	1 ...	450 00	450 00
	Gardener	1	500 00	500 00
	Assistant in store	1	600 00	600 00
	Porter and Gatekeeper	1	250 00	250 00
	Chief Attendant	1	300 00	300 00
	Night Watch, Chief	1	365 00	365 00
	do	2	480 00	480 00
	Male Attendants (28 in 1892)	30	6,972 00	7,416 00
	Tailor	1	500 00	500 00
	Farmer	1	600 00	600 00
	Butcher	1	240 00	240 00
	Ploughman	1	240 00	240 00
	Messenger and Stableman	1	240 00	240 00
	Yardman	1	240 00	240 00
	Farm hand	1	180 00	180 00
	Laundryman	1	300 00	300 00
	Shoemaker	1	300 00	300 00
	Cowman	1	180 00	180 00

V.—PUBLIC INSTITUTIONS MAINTENANCE—*Continued.*

No. of Vote.	SERVICE.	No. of Officers and Employés.	Salaries and Expenses. 1892.	1893.
			$ cts.	$ cts.
44	ASYLUM FOR THE INSANE, HAMILTON—*Continued.*			
	FEMALES.			
	Matron	1	500 00	500 00
	Assistant Matron	1	300 00	360 00
	Second Assistant Matron	1	.....	240 00
	Chief Attendant	1	250 00	250 00
	Supervisors (9 in 1892)	10	1,566 00	1,740 00
	Ordinary Female Attendants (17 in 1892)	18	2,550 00	2,700 00
	Night Watchers	3	450 00	450 00
	Cooks	5	888 00	732 00
	Laundresses	3	384 00	396 00
	Housemaids	4	444 00	444 00
	Seamstresses	2	288 00	288 00
		113	31,557 00	32,621 00
	Expenses.			
	Medicines and medical comforts		600 00	600 00
	Fuel		17,500 00	15,000 00
	Butcher's meat, fish and fowl		15,500 00	15,500 00
	Flour, bread, etc		8,000 00	7,000 00
	Butter		7,000 00	6,000 00
	Gas and oil		3,000 00	3,600 00
	Groceries		14,500 00	13,000 00
	Fruit and vegetables		1,800 00	1,000 00
	Bedding, clothing and shoes		8,000 00	7,000 00
	Laundry, soap and cleaning		2,000 00	2,000 00
	Furniture and furnishings		2,000 00	2,000 00
	Farm, feed and fodder		1,500 00	1,500 00
	Repairs and alterations		3,500 00	3,500 00
	Miscellaneous, including rents, etc		3,500 00	3,500 00
	Water supply		1,700 00	1,700 00
	Printing, postage and stationery		1,200 00	1,000 00
			122,857 00	115,921 00
45	ASYLUM FOR IDIOTS, ORILLIA.			
	(For 525 patients.)			
	Salaries.	No. of Officers and Employés.		
	Medical Superintendent	1	1,800 00	1,800 00
	Assistant Physician	1	.....	500 00
	Bursar	1	1,100 00	1,300 00
	Storekeeper	1	700 00	750 00
	Engineers	3	1,100 00	1,150 00
	Gardener	1	300 00	300 00
	Baker	1	.....	400 00
	Chief Attendant	1	300 00	300 00
	Night Watchers	2	605 00	605 00
	Ordinary Male attendants (8 in 1892)	9	1,920 00	2,160 00
	Messenger, Porter and Stable-keeper	2	480 00	480 00
	Carpenter	1	500 00	500 00
	Farmer	1	450 00	450 00
	Stokers	2	960 00	480 00

V.—PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	No. of Officers and Employés.	Salaries and Expenses. 1892.	**1893.**
			$ cts.	$ cts.
45	ASYLUM FOR IDIOTS, ORILLIA—*Continued.*			
	FEMALES.			
	Matron	1	450 00	450 00
	Assistant Matron	1	300 00	300 00
	Teachers for feeble-minded children, (one additional)	6	1,550 00	1,850 00
	Ordinary Female Attendants	9	1,950 00	1,350 00
	Night Attendants	2	300 00	300 00
	Cooks	2	528 00	288 00
	Laundresses	3	264 00	396 00
	Housemaids	8	1,080 00	912 00
	Seamstresses	2	300 00	300 00
	Dairymaid	1	120 00	120 00
		62	17,357 00	17,741 00
	Expenses.			
	Medicine and medical comforts		120 00	120 00
	Fuel		15,500 00	14,500 00
	Butchers' meat, fish and fowl		5,000 00	5,000 00
	Flour, bread, etc		5,500 00	4,000 00
	Butter		2,500 00	3,000 00
	Gas and oil		600 00	600 00
	Groceries		4,000 00	3,500 00
	Fruit and vegetables		2,000 00	1,500 00
	Bedding, clothing and shoes		4,000 00	4,000 00
	Laundry, soap and cleaning		1,200 00	1,200 00
	Furniture and furnishings		1,250 00	1,250 00
	Farm, feed and fodder		2,125 00	2,000 00
	Repairs		1,600 00	1,600 00
	Miscellaneous		1,500 00	1,500 00
	Printing, postage and stationery		750 00	750 00
			65,092 00	62,261 00
46	CENTRAL PRISON, TORONTO.			
	(For 345 Prisoners.)			
	Salaries.	No. of Officers and Employés.		
	Warden	1	2,000 00	2,000 00
	Deputy Warden	1	1,400 00	1,400 00
	Bursar	1	1,300 00	1,300 00
	Physician	1	1,000 00	1,000 00
	Clerk and Prison Librarian	1	850 00	850 00
	Steward and Storekeeper	1	800 00	800 00
	Clerk (one-half charged to Industrial Department)	1	400 00	400 00
	Guards	22	11,200 00	11,225 00
	Engineer	1	890 00	950 00
	Baker	1	600 00	650 00
		31	20,440 00	20,575 00
	Expenses.			
	Hospital expenses and medicines		400 00	450 00
	Butchers' meat and fish		8,500 00	6,500 00
	Flour, bread and meal		5,500 00	5,000 00
	Groceries		5,000 00	4,000 00
	Bedding, clothing and shoes		6,000 00	5,000 00

V.—PUBLIC INSTITUTIONS MAINTENANCE—*Continued.*

No. of Vote.	SERVICE.			Salaries and Expenses. 1892.	Salaries and Expenses. 1893.
46	CENTRAL PRISON, TORONTO—*Continued.*				
	Expenses—Continued.			$ cts.	$ cts.
	Fuel			6,000 00	6,300 00
	Gas and oil			1,100 00	1,300 00
	Water supply			2,000 00	1,000 00
	Laundry, soap and cleaning			2,000 00	2,300 00
	Stationery, advertising, printing and postage			550 00	400 00
	Library, schools and expenses of religious services			1,000 00	1,000 00
	Furniture and furnishings			800 00	700 00
	Stable, forage, etc			1,200 00	1,000 00
	Grounds			450 00	450 00
	Repairs, etc			1,600 00	1,500 00
	Unenumerated			2,000 00	2,000 00
				64,540 00	59,475 00
	INDUSTRIAL DEPARTMENT.				
	Salaries.	No. of Officers and Employés.			
	Book-keeper	1			800 00
	Clerk (one-half charged to Maintenance)	1		400 00	400 00
	Shoemaker, without allowance for rent	1		800 00	800 00
	Tailor do do	1		800 00	800 00
	Foreman and Instructors	16		9,850 00	12,270 00
	Night Watch and Assistant Engineer	1		600 00	600 00
	Material	..		45,000 00	
	For use of patents, wire beds, etc	..		810 00	
		21		122,800 00	75,145 00
47	ONTARIO REFORMATORY FOR BOYS, PENETANGUISHENE.				
	For 168 Inmates.				
	Salaries.	No. of Officers and Employés.			
	Superintendent	1		1,800 00	1,800 00
	Assistant Superintendent	1		950 00	950 00
	Bursar	1		900 00	900 00
	Surgeon	1		700 00	700 00
	Chaplains	2		1,200 00	1,200 00
	Steward and Storekeeper	1		800 00	800 00
	Chief Guard (for night duty)	1		500 00	500 00
	School Teachers	3		1,650 00	1,650 00
	Carpenter Instructor	1		600 00	600 00
	Engineer	1		600 00	600 00
	Baker and Cook	1		450 00	450 00
	Instructors in shoe and tailor shops	2		1,150 00	1,150 00
	Farmer	1		450 00	450 00
	Gardener	1		400 00	400 00
	Ordinary Guards	4		1,700 00	1,700 00
	Night Guards	4		1,600 00	1,600 00
	Guard at out-buildings	1		400 00	400 00
	Gate-keeper	1		400 00	400 00
	Organists	2		160 00	160 00
	FEMALES.				
	Laundress, etc	1		240 00	240 00
		31		16,650 00	16,650 00

V—PUBLIC INSTITUTIONS MAINTENANCE.—*Continued.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
47	ONTARIO REFORMATORY FOR BOYS, PENETANGUISHENE—*Continued.*	$ cts.	$ cts.
	Expenses.		
	Rations	5,800 00	5,000 00
	Clothing	4,600 00	5,000 00
	Farm, farm stock and stables	2,000 00	1,800 00
	Hospital	100 00	150 00
	Library and schools	400 00	350 00
	Fuel	3,000 00	3,000 00
	Cleaning, light and laundry	500 00	300 00
	Furniture, tools and shop fixtures	800 00	900 00
	Workshops, tools and fixtures	300 00	300 00
	Repairs, ordinary	1,500 00	1,500 00
	Incidentals (recaptures, freight, rent, etc)	2,000 00	2,000 00
	Postage and stationery, printing and advertising	400 00	400 00
		38,050 00	37,350 00
48	INSTITUTE FOR THE DEAF AND DUMB, BELLEVILLE.		
	For 261 pupils.		
	Salaries. — No. of Officers and Employés.		
	Superintendent	1	1,800 00	1,800 00
	Physician	1	650 00	650 00
	Bursar	1	850 00	850 00
	Matron and Housekeeper	1	450 00	450 00
	Teachers	15	9,100 00	9,240 00
	Storekeeper and Clerk	1	650 00	600 00
	Engineer	1	600 00	600 00
	Stoker	1	300 00	300 00
	Farmer	1	400 00	400 00
	Teamster	1	240 00	240 00
	Gardener	1	300 00	300 00
	Baker	1	425 00	425 00
	Night Watchman	1	300 00	300 00
	Carpenter and Assistant	2	750 00	750 00
	Shoemaker	1	550 00	550 00
	Messenger	1	192 00	192 00
	Cook	1	168 00	168 00
	Small Boy's and Girl's Nurses	2	240 00	288 00
	Maid, Laundresses and Cook's Assistant	12	1,356 00	1,356 00
	Supervisor of Boys	1	550 00	360 00
	Printing Instructor and Assistant Supervisor of Boys	1	550 00	500 00
	Seamstress and Supervisor of Girls	1	300 00	300 00
		49	20,721 00	20,619 00
	Expenses.			
	Medicine and Medical Comforts		200 00	200 00
	Butchers' meat, fish and fowl		4,200 00	4,200 00
	Flour		2,200 00	2,200 00
	Butter		2,300 00	2,500 00
	Groceries		2,500 00	2,300 00
	Fruit and vegetables		500 00	500 00
	Bedding, clothing and shoes		900 00	700 00
	Fuel		3,800 00	4,300 00

V.—PUBLIC INSTITUTIONS MAINTENANCE—*Continued.*

No. of Vote.	SERVICE.	No. of Officers and Employés.	Salaries and Expenses. 1892.	Salaries and Expenses. 1893.
			$ cts	$ cts.
48	INSTITUTE FOR DEAF AND DUMB, BELLEVILLE—*Continued.*			
	Expenses—Continued.			
	Gas and oil		1,200 00	1,150 00
	Laundry, soap and cleaning		400 00	500 00
	Furniture and furnishings		600 00	600 00
	Farm, feed and fodder		700 00	700 00
	Repairs and alterations		900 00	900 00
	Advertising, printing, stationery and postage		650 00	650 00
	Books, apparatus and appliances		700 00	700 00
	Unenumerated		1,500 00	1,500 00
	Sewage works, chemicals			300 00
	Water supply under contract			900 00
			43,971 00	45,419 00
49	INSTITUTION FOR THE BLIND, BRANTFORD.			
	(For 130 pupils.)			
	Salaries.			
	Principal	1	1,800 00	1,800 00
	Physician	1	600 00	600 00
	Bursar	1	900 00	900 00
	Matron	1	400 00	400 00
	Teachers (16 in 1892)	15	7,000 00	6,450 00
	Trade Instructor	1	1,100 00	1,100 00
	Visitors' attendant	1	156 00	156 00
	Carpenter	1	424 00	424 00
	Engineer	1	600 00	600 00
	Assistant Engineer	1	500 00	500 00
	Fireman in winter and farm hand in summer	1	360 00	360 00
	Gardener	1	400 00	400 00
	Farmer and Teamster	1	312 00	312 00
	Porter and Messenger	1	216 00	216 00
	Cook and Baker	2	568 00	568 00
	Cook's Assistant	1	120 00	120 00
	Maids	10	984 00	972 00
	Laundress	1	168 00	168 00
	Laundress' Assistant	2	216 00	216 00
	Nurses	3	410 00	410 00
	Nightwatchman	1	350 00	350 00
	Temporary assistance, including extra farm hands in summer		300 00	300 00
		48	17,824 00	17,262 00
	Expenses.			
	Medicine and medical comforts		200 00	200 00
	Butcher's meat, fish and fowl		3,200 00	3,000 00
	Flour, bread, etc		1,000 00	1,000 00
	Butter		1,100 00	1,100 00
	General groceries		2,000 00	2,000 00
	Fruit and vegetables		300 00	300 00
	Bedding, clothing and shoes		700 00	700 00
	Fuel		3,000 00	3,150 00
	Gas, oil and candles		1,100 00	1,000 00
	Laundry, soap and cleaning		300 00	300 00
	Furniture and furnishings		500 00	500 00
	Farm, feed and fodder		800 00	800 00
	Repairs and alterations		600 00	600 00
	Advertising, printing, stationery and postage		600 00	600 00
	Books, apparatus and appliances		1,000 00	1,000 00
	Unenumerated		1,400 00	1,500 00
	Pupils' fittings at the churches			200 00
	Rent for water hydrants			100 00
			35,724 00	35,452 00

V.—PUBLIC INSTITUTIONS MAINTENANCE—*Concluded.*

No. of Vote.	SERVICE.		Salaries and Expenses. 1892.	Salaries and Expenses. **1893.**
50	ANDREW MERCER REFORMATORY FOR FEMALES AND REFUGE FOR GIRLS, TORONTO.			
	(For 121 inmates.)		$ cts.	$ cts.
	Salaries	No. of Officers and Employés.		
	Superintendent	1	1,000 00	1,000 00
	Deputy Superintendent	1	600 00	600 00
	Secretary	1	350 00	350 00
	Physician	1	800 00	800 00
	Bursar and Storekeeper	1	900 00	900 00
	Teacher and Housekeeper for Refuge	1	550 00	550 00
	Attendants and servants	14	2,356 00	2,356 00
	Engineer	1	600 00	600 00
	Assistant Engineer	1	500 00	500 00
	Night Watch	1	400 00	400 00
	Messenger	1	400 00	400 00
	Outside Night Watch	1	400 00	400 00
	Gardener	1	400 00	450 00
		26	9,256 00	9,306 00
	Expenses.			
	Hospital expenses and medicines		200 00	200 00
	Butchers' meat and fish		2,000 00	1,650 00
	Flour, bread and meal		1,500 00	1,400 00
	Groceries		3,500 00	3,500 00
	Bedding, clothing and shoes		2,000 00	1,600 00
	Fuel		3,000 00	3,000 00
	Gas and oil		600 00	600 00
	Laundry, soap, cleaning and water		1,600 00	1,600 00
	Stationery, advertising, postage, etc		350 00	300 00
	Library, schools and lectures		400 00	400 00
	Furniture and furnishings		600 00	600 00
	Grounds and garden		800 00	800 00
	Repairs		400 00	400 00
	Unenumerated		1,200 00	1,200 00
	For manufacturing operations		1,500 00	1,500 00
	Feed and forage		300 00	300 00
			29,206 00	28,356 00

VI.—IMMIGRATION.

To be voted per Statement (A).....$8,160.00.

No. of Vote.	A	1892.	1893.
		$ cts.	$ cts.
51	Agencies in Europe	4,400 00	4,560 00
	Agencies in Ontario	600 00	1,400 00
	Allowance for maps, circulars and literature	2,000 00	200 00
	To encourage new settlers on Rainy River	1,000 00	.....
	Incidentals	2,000 00	2,000 00
		10,000 00	8,160 00

No. of Vote.	SERVICE.	Salaries and Expenses 1892.	1893.
51	Details.	$ cts.	$ cts.
	Agencies in Europe.		
	Agent in Liverpool	2,000 00	2,000 00
	Clerk	240 00	400 00
	Travelling expenses	500 00	500 00
	Printing and contingencies	1,000 00	1,000 00
	Office rent and expenses, including fuel, stationery, etc	660 00	660 00
		4,400 00	4,560 00
	Agencies in Ontario.		
	Allowance for constable at railway station and shed	600 00	600 00
	Clerk (*heretofore charged to Contingencies*)	.....	800 00
		600 00	1,400 00

VII.—AGRICULTURE.

To be voted per Statement (A).....$176,837.00.

No. of Vote.	A	1892.	1893.
		$ cts.	$ cts.
52	Agriculture	174,595 00	176,837 00

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
52	DETAILS.	$ cts.	$ cts.
	(a) AGRICULTURE.		
	Electoral Division Societies, 87 at $700 (86 in 1891)	60,900 00	60,900 00
	" 1 at 550	550 00	550 00
	" 4 at 350	1,400 00	1,400 00
	" Outlying Districts	2,000 00	2,000 00
	Additional grant to 87 Electoral District Societies	8,700 00	8,700 00
	Fruit Grower's Association	1,800 00	1,800 00
	Entomological Society	1,000 00	1,000 00
	Dairymen's Associations	5,500 00	5,500 00
	Agricultural and Arts Association	5,500 00	5,800 00
	Dominion Sheep-Breeder's Association	300 00	300 00
	Swine-Breeder's Association	300 00	300 00
	Ontario Experimental Union	400 00	650 00
	Ontario Creameries Association	1,500 00	2,000 00
	Poultry Associations	1,300 00	1,300 00
	Beekeeper's Association and inspection	1,100 00	1,100 00
	Travelling expenses of Professors attending Farmers' Institutes, conventions, etc	800 00	1,000 00
	Travelling expenses and allowances for other Lecturers at Farmer's Institutes	1,800 00	2,500 00
	Farmers' Institutes, a grant of $25 to one Institute in each Electoral District, on condition that an equal sum be granted by the County Council, and on such further conditions as may be imposed by regulations of Commissioner of Agriculture	2,000 00	2,200 00
	Provincial Institute	1,600 00	1,200 00
	For sundry services in connection with Agriculture and Arts—such as investigations of disease in animals and crops, and of ravages of insects; printing and distributing reports and bulletins, and for agricultural instruction, dairy products, travelling expenses and contingencies, not otherwise provided for	8,000 00	9,000 00
	Forestry	2,000 00	2,000 00
	Tree-planting—Bonus to Municipalities under 46 Vic., chap. 36	1,000 00	1,000 00
	BUREAU OF STATISTICS.		
	Printing, stationery, postage, and collection of statistics	6,500 00	6,500 00
		115,950 00	118,700 00
	ONTARIO AGRICULTURAL AND EXPERIMENTAL FARM. (130 Students).		
	I. College.—(a) Salaries and Wages.		
	President	2,000 00	2,000 00
	Professor of Agriculture and Farm Superintendent	2,000 00	2,000 00

VII.—AGRICULTURE.—*Continued.*

No. of Vote.	SERVICE.	Voted for. 1892.	Voted for. 1893.
		$ cts.	$ cts.
52	ONTARIO AGRICULTURAL COLLEGE AND EXPERIMENTAL FARM.—*Continued.*		
	(*a*) *Salaries and Wages.*		
	Professor of Chemistry	1,500 00	1,600 00
	" Geology and Natural History	1,800 00	1,800 00
	" Dairy Husbandry	1,300 00	1,400 00
	" Veterinary Science (part time)	1,000 00	800 00
	Mathematical and Assistant Resident Master	1,000 00	1,000 00
	Assistant in the Department of Chemistry	850 00	900 00
	Assistant in Department of Natural History, Librarian, etc	.....	500 00
	Instructor in Drill and Gymnastics (part time)	200 00	300 00
	Bursar	950 00	1,000 00
	Shorthand writer and tutor	500 00	600 00
	Physician	300 00	300 00
	Matron and Housekeeper	400 00	400 00
	Engineer	800 00	800 00
	Stokers	432 00	432 00
	Janitor and Messenger	288 00	300 00
	Night Watchman and Assistant in looking after Students in Boarding-house (nine months in 1892; 12 months in 1893)	225 00	300 00
	Temporary assistance	100 00	100 00
	Summer course of lectures for Public School Teachers	.....	500 00
		15,645 00	17,032 00
	(*b*) *Expenses of Boarding House.*		
	Meat, fish and fowl	4,000 00	4,000 00
	Bread and biscuit	800 00	800 00
	Groceries, butter and fruit	4,000 00	4,500 00
	Laundry, soap and cleaning	300 00	300 00
	Women servants for boarding-house—Cooks, laundresses, etc.	1,700 00	1,800 00
	Advertising, printing, postage and stationery	800 00	900 00
	Maintenance of chemical and botanical laboratories	300 00	450 00
	Library (books, papers and periodicals)	300 00	300 00
	Medals	100 00	100 00
	Unenumerated	700 00	700 00
		28,345 00	30,882 00
	Less estimated revenue	5,000 00	6,000 00
	II.—EXPERIMENTAL FARM.	23,645 00	24,882 00
	(*a*) *Farm Proper.*		
	1. Permanent improvements—fencing, under-draining, paving sheep court, etc	3,586 00	1,038 00
	2. Farm maintenance—	$ c. / $ c.	
	Salary of Farm Foreman ($400 for instruction)	850 00 / 850 00	
	Herdsman ($150 for instruction)	500 00 / 500 00	
	Assistant herdsman	300 00 / 360 00	
	Wages	3,005 00 / 2,814 00	
	Hire of horse labor	100 00 /	
	Live stock	4,012 00 / 2,000 00	
	Maintenance of stock	4,950 00 / 2,240 00	
	Seed	240 00 / 240 00	
	Manure (fertilizers)	100 00 / 60 00	
	Binding twine	50 00 / 50 00	
	Repairs and alterations	372 00 / 450 00	
	Furniture and furnishings	250 00 / 250 00	
	Tools and implements	340 00 / 480 00	
	Advertising, printing, postage and stationery	530 00 / 500 00	
	Fuel, light, etc.	250 00 / 250 00	
	Contingencies	500 00 / 500 00	
		16,349 00 / 11,544 00	
	Less estimated revenue	8,000 00 / 6,000 00	
		8,349 00	5,544 00
		11,935 00	6,582 00

VII.—AGRICULTURE.—*Continued.*

No. of Vote.	SERVICE.			Voted for. 1892.	Voted for. 1893.
52	II.—Experimental Farm.—*Continued.*			$ cts.	$ cts.
	(b) Experiments.				
	Salaries and wages—	$ c.	$ c.		
	Experimentalist	1,200 00	1,300 00		
	Experimental Foreman (9 months)	420 00	300 00		
	Experimental feeder	450 00	450 00		
	Assistant experimental feeder		360 00		
	Head Teamster ($120 chargeable to farm and $100 to instruction)		420 00		
	Teamster (7 months in 1892)	210 00	300 00		
	2 regular laborers	600 00	625 00		
	1 laborer (4 months)		128 00		
	Additional labor	1,045 00	800 00		
		3,925 00	4,683 00		
	Seeds	400 00	400 00		
	Manure and special fertilizers	175 00	250 00		
	Stock for feeding	350 00	60 00		
	Furniture, furnishing and repairing	400 00	400 00		
	Printing, postage and stationery	125 00	175 00		
	Implements	415 00	414 00		
	Feed and fodder	50 00	50 00		
	Exhibitions	50 00	50 00		
	Contingencies	250 00	100 00		
				6,140 00	6,582 00
	III.—Experimental Dairy.				
	(a) Maintenance.				
	Salary of assistant—to make butter, instruct students, etc	500 00	600 00		
	Laborers for milking and feeding stock, etc	460 00	660 00		
	Temporary assistance	150 00	100 00		
		1,110 00	1,360 00		
	Purchase of cows and pigs	1,000 00	1,000 00		
	Feed for do do	900 00	1,000 00		
	Furniture, furnishing and repairs	200 00	300 00		
	Laboratory expenses, gas, chemicals, etc.	50 00	50 00		
	Advertising, printing, postage and stationery	150 00	150 00		
	Fuel		200 00		
	Contingencies	140 00	200 00		
		3,550 00	4,260 00		
	Less estimated revenue	1,000 00	1,260 00		
				2,550 00	3,000 00
	(b) Special Dairy School.				
	Wages of Instructors		700 00		
	Purchase of milk		4,500 00		
	Dairy appliances—butter extractor, Babcock tester, oil test churn, 100 large milk cans, etc		1,000 00		
			6,200 00		
	Less estimated revenue		2,200 00		
				.....	4,000 00
	(c) Capital Account.				
	Dairy appliances—for fitting up new butter and cheese rooms, extractor, accumulator, separator, curd mill, vats, etc	1,200 00			
	Expenses re travelling dairy	5,600 00	5,600 00		
				6,800 00	5,600 00

VII.—AGRICULTURE.—*Concluded.*

No. of Vote.	SERVICE.			Voted for. 1892.	Voted for. 1893.
				$ cts.	$ cts.
52	IV.—Poultry Department.				
	Salary of Manager	600 00	600 00		
	Furnishings, boiler, utensils, etc	100 00	100 00		
	Feed, etc	200 00	200 00		
				900 00	900 00
	V.—Nursery, Forest Tree Plantation, Orchard, Arboretum, Vineyard, Vegetable Garden and Lawn (63 acres).				
	Lecturer and Instructor in horticulture		800 00		
	Head Gardener	700 00	550 00		
	Assistant Gardener	480 00	500 00		
	Assistant Gardener (8 months in 1891) 6 months	240 00			
	Assistant Gardener	380 00	380 00		
	Teamster	325 00	336 00		
	Laborers	1,350 00	1,350 00		
	Manure	150 00	100 00		
	Trees, seeds, bulbs and plants	550 00	300 00		
	Furnishings, implements, tools, flower pots and repairs	350 00	250 00		
	Fuel and light	450 00	550 00		
	Contingencies	100 00	100 00		
				5,075 00	5,216 00
	VI.—Mechanical Department.				
	Salary of foreman	700 00	700 00		
	Extra carpenter for erection of buildings, etc.	600 00	600 00		
	Lumber, nails, oil, paint, etc	150 00			
	Tools, etc	100 00	50 00		
	Fuel and light	25 00	25 00		
	Contingencies	25 00		1,600 00	1,375 00
				35,000 00	33,255 00

VIII.—HOSPITALS AND CHARITIES.

To be voted per Statement (A) ..... $164,949 34.

No. of Vote.	A.	1892.	1893.
		$ cts.	$ cts.
53	For Hospitals and Institutes mentioned in Schedule "A" of Statute	89,002 50	99,355 35
	For Institutions, Schedule "B"	45,850 04	50,135 83
	" " "C"	16,563 19	15,158 16
	For printing, stationery and other contingencies connected with above Institutes	300 00	300 00
	Total	151,715 73	164,949 34

IX.—MAINTENANCE AND REPAIRS OF GOVERNMENT AND DEPARTMENTAL BUILDINGS.

To be voted per Statement (A).....$71,480 00

No. of Vote.	A.	1892	1893
		$ cts.	$ cts.
54	Government House	7,500 00	7,500 00
55	Old Parliament Buildings	.....	1,200 00
56	New Parliament and Departmental Buildings	14,750 00	28,180 00
57	Education Department (Normal School Building)	9,200 00	9,200 00
58	Miscellaneous	3,208 00	3,260 00
59	Normal School, Ottawa	3,350 00	3,750 00
60	School of Practical Science	2,000 00	3,000 00
61	Agricultural College	6,350 00	6,750 00
62	Osgoode Hall	8,640 00	8,640 00
	Rented premises, Simcoe and Wellington Streets	4,250 00	
	Agricultural Hall	650 00	
		59,898 00	71,480 00

No. of Vote.	SERVICE.	Salaries and Expenses. 1892	1893
	DETAILS.	$ cts.	$ cts.
54	*Government House.*		
	Water	650 00	650 00
	Gas	1,350 00	1,350 00
	Fuel	2,200 00	2,200 00
	Repairs	1,500 00	1,500 00
	Furnishings	1,000 00	1,000 00
	Planting and plants	500 00	500 00
	Contingencies (clearing away snow, carting ashes, etc.)	300 00	300 00
55	*Old Parliament Buildings.*	7,500 00	7,500 00
	Fuel, light and water for Immigration Office, caretaker, etc., repairs, snow clearing, care of grounds, etc	.....	1,200 00
	New Parliament and Departmental Buildings.	.....	1,200 00
56			
	Estimates, 1892, Old Parliament Buildings, including East and West Wings	14,750 00	
	Estimates, 1892, Rented premises, Simcoe and Wellington Streets	4,250 00	
	" *1892,* " *Department of Agriculture*	650 00	
	NOTE.—*Estimates of 1892 for Legislation also provide $1,450 for Night Watchman, Messenger and Fireman. See items under head of "Legislation."*		
	Water	.....	1,200 00
	Electric power, and electric and other lighting	.....	2,500 00
	Fuel (in part used in 1892)	.....	11,500 00
	Supplies, tools, etc., for engine room, boiler house, etc	.....	600 00
	Engineer in charge of steam-heating, ventilating and electric plant machinery, etc (also inspector of boilers in Provincial Institutions)	.....	1,200 00
	Assistant engineer and steam-fitter	.....	720 00
	Firemen in boiler room (3)	.....	1,620 00
	Passenger elevator attendants (2)	.....	840 00
	Hall Porters and Messengers, in charge of main entrances, public corridors, etc. (4)	.....	2,000 00
	Repairs, care-takers of grounds and sidewalks, snow clearing, scrubbing, and general cleaning of buildings, etc	.....	6,000 00
		19,650 00	28,180 00

IX.—MAINTENANCE AND REPAIRS OF GOVERNMENT AND DEPARTMENTAL BUILDINGS.—*Concluded.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	1893.
	DETAILS.—*Continued.*		
57	*Education Department, Normal and Model Schools, Toronto.*	$ cts.	$ cts.
	Furniture and furnishings	2,000 00	2,000 00
	Expenses of grounds	800 00	800 00
	Fuel and light	3,800 00	3,800 00
	Water	1,000 00	1,000 00
	Repairs, including museum, etc	1,000 00	1,000 00
	Carpenter (formerly paid out of contingencies)	600 00	600 00
		9,200 00	9,200 00
58	*Miscellaneous.*		
	General Clerk of Works and repairs to Public Institutions	1,200 00	1,200 00
	Carpenter (engaged in Government Buildings)	720 00	720 00
	Plumber and assistant do	1,288 00	1,340 00
		3,208 00	3,260 00
	Normal School, Ottawa.		
	Expenses of grounds	400 00	400 00
	Fuel and light	1,600 00	2,000 00
	Water	600 00	600 00
	Repairs, furniture and incidentals	750 00	750 00
		3,350 00	3,750 00
60	*School of Practical Science.*		
	Gas	200 00	350 00
	Fuel	1,000 00	1,500 00
	Water	200 00	250 00
	Electrical current for power, etc		100 00
	Repairs, furniture and incidentals	600 00	800 00
		2,000 00	3,000 00
61	*Agricultural College.*		
	Furniture and furnishings	600 00	700 00
	Repairs and alterations	600 00	700 00
	Fuel	3,200 00	3,400 00
	Light	1,100 00	1,100 00
	Water	650 00	650 00
	Sewage disposal	200 00	200 00
		6,350 00	6,750 00
62	*Osgoode Hall.*		
	Fuel and light	5,000 00	5,000 00
	Salaries of engineer and fireman	1,140 00	1,140 00
	Water	500 00	500 00
	Repairs and furniture	2,000 00	2,000 00
		8,640 00	8,640 00

X.—PUBLIC BUILDINGS.

To be voted per Statement (A).....$491,646.00.

No. of Vote.	A.	1893. Revote estimated.	1893. New Vote.
		$ cts.	$ cts.
63	Asylum for the Insane, Toronto	300 00	7,245 00
64	" Mimico	700 00	17,780 00
65	" Brockville	49,500 00	100,000 00
66	" London	5,700 00	20,835 00
67	" Hamilton	1,100 00	26,600 00
68	" Kingston	2,800 00	11,850 00
69	Asylum for Idiots, Orillia	400 00	3,700 00
70	Reformatory for Boys, Penetanguishene	500 00	6,105 00
71	" Females	150 00	2,495 00
72	Central Prison, Toronto	500 00	63,090 00
73	Deaf and Dumb Institute, Belleville	.....	15,055 00
74	Blind Institute, Brantford	500 00	1,530 00
75	Agricultural College, Guelph	2,100 00	15,500 00
76	Education Department, Normal and Model Schools, Toronto	1,800 00	1,000 00
77	Normal School, Ottawa	.....	6,000 00
78	School of Practical Science, Toronto	.....	13,720 00
79	Osgoode Hall, Toronto	3,000 00	500 00
80	Government House, Toronto	.....	5,000 00
81	New Parliament and Departmental Buildings	.....	87,891 00
82	Algoma District	600 00	1,900 00
83	Thunder Bay "	500 00	1,300 00
84	Muskoka "	900 00	700 00
85	Parry Sound "	600 00	1,000 00
86	Nipissing "	2,400 00	2,100 00
87	Rainy River "	600 00	3,900 00
88	Miscellaneous	200 00	.....
		74,850 00	416,796 00
	Revotes included in above	74,850 00	
	Expenditure on capital account (new)	401,466 00	
	" repairs	15,330 00	
	Total estimate for 1893	491,646 00	
	(Voted for 1892, $430,456.)		

No. of Vote.	SERVICE.	To be voted for 1893.	
	DETAILS.		
63	*Asylum for Insane, Toronto,*	$ cts.	$ cts.
	General repairs, drains, etc	500 00	
	Furniture and furnishings (Inspector), partly revote	3,714 00	
	Library	175 00	
	Garden, grounds and stables	536 00	
	Engineer's and Carpenter's Departments	2,000 00	
	Paints, oils, etc	620 00	
			7,545 00

X.—PUBLIC BUILDINGS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1893. $ cts.	$ cts.
	DETAILS.—*Continued.*		
64	*Asylum for Insane, Mimico.*		
	General repairs, drains, etc	500 00	
	Filter-house and polarite, sewage disposal	5,500 00	
	Auxiliary electric plant, steam boiler, engine and dynamos	3,000 00	
	Storm-sashes for refractory cottages and main building	1,000 00	
	Root-house, and addition to cow-stables, farm buildings	2,000 00	
	Furniture and furnishings, to complete cottages (Inspector)	1,750 00	
	Material for hot-water heating, refractory cottages	1,400 00	
	Wire guards for stairways	300 00	
	Telephone system	500 00	
	Washing machine for laundry	200 00	
	Greenhouse	730 00	
	Engineer's Department (partly revote)	550 00	
	Paints and oils	500 00	
	Carpenter's supplies (partly revote)	550 00	
			18,480 00
65	*Asylum for Insane, Brockville.*		
	Revote of part of unexpended balance	49,500 00	
	Further amount required for this year's operations	100,000 00	
			149,500 00
66	*Asylum for Insane, London.*		
	Revote of part of unexpended balance	5,700 00	
	New cast-iron sewage discharge pipe	1,600 00	
	Repairs to roofs and eaves of cottages	1,800 00	
	Steam-heating and radiators, dining-room annexes	2,400 00	
	Material for heating Superintendent's house with hot water	800 00	
	Addition to rear of Bursar's house	1,200 00	
	" boiler-house and coal-shed, north building	1,000 00	
	Building porch at front door, north building	300 00	
	Furniture and furnishings (Inspector), partly revote	3,680 00	
	Materials for glass partitions, hardwood flooring, fences, etc	2,005 00	
	Gravel for repairing roads, repairs to closets, Engineer's house, etc	350 00	
	Material to complete farm buildings on new site	4,935 00	
	Engine, boiler, cutting-box, etc., for silo	765 00	
			26,535 00
67	*Asylum for Insane, Hamilton.*		
	To complete dining-room annexes, covered ways, etc	5,500 00	
	Hot-water boilers and apparatus for "	4,500 00	
	Alteration of old dining-room to dormitories	1,800 00	
	Repairs to underground water-tanks, and new coal shed	1,300 00	
	Enlargement of water pipes, main building, fire protection	600 00	
	New portico and steps, main building	400 00	
	Addition to Superintendent's house, completing stone cottage, etc	800 00	
	Workshop for Engineer, rebuilding ice-house (revote)	850 00	
	Furniture and furnishings (Inspector)	3,500 00	
	Telephone service (revote)	250 00	
	Library	200 00	
	Purchase of Andrew's property (revote in part)	8,000 00	
			27,700 00
68	*Asylum for Insane, Kingston.*		
	Revote of unexpended balance	2,350 00	
	Infirmary building, 20 patients (with asylum labor)	8,000 00	
	Repairs to Laundry roof	750 00	
	Newcourt farm buildings	1,000 00	
	Furniture and furnishings (Inspector)	550 00	
	Material for bath and store-room, Newcourt, and telephone	350 00	
	do repairs on the Walkem property	300 00	
	Baking oven and elevator for Laundry (partly re-vote)	550 00	
	Flooring for centre building, material for roothouse, etc	800 00	
			14,650 00

X.—PUBLIC BUILDINGS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1893. $ cts.	$ cts.
	DETAILS.—*Continued.*		
69	*Asylum for Idiots, Orillia.*		
	Revote of unexpended balance	400 00	
	Addition to farm buildings	1,000 00	
	Furniture and furnishings (Inspector)	800 00	
	Farm stock and implements	700 00	
	Garden and grounds	1,000 00	
	Wire guards	200 00	
			4,100 00
70	*Reformatory for Boys, Penetanguishene.*		
	Re-vote of unexpended balance	500 00	
	Furniture and furnishings (Inspector)	750 00	
	New ice-house, addition to root-house, fencing, etc	700 00	
	New roofs for playroom and guards' houses, painting, etc	1,800 00	
	Repairs to Corliss engine, and tools for blacksmith shop	350 00	
	Sewing machine and refrigerator	165 00	
	To purchase stock, sheep, harness, etc	240 00	
	Garden and grounds, planking for sidewalks, etc	100 00	
	Putting in electric light and water for all purposes	2,000 00	
			6,605 00
71	*Reformatory for Females.*		
	Revote of unexpended balance	150 00	
	Furniture and furnishings (Inspector)	657 50	
	Finishing repairs to greenhouse and sewer	400 00	
	Sheeting ceilings in corridors	300 00	
	Reconstructing drying room and repairs to floor	277 50	
	Repairing refrigerator, water closet for children, etc	370 00	
	Rebuilding furnaces, sidewalk and fences	190 00	
	Labor hardware, etc., for repairs	300 00	
			2,645 00
72	*Central Prison, Toronto.*		
	Revote of unexpended balance	500 00	
	Cordage shop—1 breaker, 26 jennies, and 6 balling machines	12,300 00	
	Rope-former, calendar, head tow card, dusting machine, etc	8,160 00	
	Lumber and other material for roofing, etc., broom shop	5,200 00	
	North shop—sticker and two self-feeding frames	750 00	
	Machine shop—drilling machine and elevator	480 00	
	Slating roofs of hardware and broom shop	2,550 00	
	South shop—2 benches, 4 steam boilers, waste card, etc	4,350 00	
	Renewing gas pipes and worn out pipes	4,500 00	
	Iron pipe for well, 1,500 feet	1,000 00	
	Electric alarm, general repairs, new piggery, etc	3,300 00	
	Removing old Hospital and utilizing material for houses	1,500 00	
	Restoration of north shop partially destroyed by fire	5,000 00	
	Machinery, line shafting pulleys and belting, including repairs to damaged machinery	10,500 00	
	Automatic sprinklers in the several workshops of prison	3,500 00	
			63,590 00
73	*Deaf and Dumb Institute, Belleville.*		
	To complete sewage disposal works	1,600 00	
	Isolated Hospital and furnishings	4,000 00	
	Barn for stock, roots and hay, new piggery, etc	3,000 00	
	Completion of steam heating, grates, etc	1,500 00	
	Furniture and furnishings (Inspector)	950 00	
	Books for library, etc	300 00	
	Lumber for flooring, paints and oils, plastering, etc	1,000 00	
	Re-arranging and repairing rooms over kitchen, etc	1,000 00	
	Engineer's Department, branches for hose, dies, tools, etc	805 00	
	Garden and grounds, fencing, gravel for roads, etc	900 00	
			15,055 00

X.—PUBLIC BUILDINGS,—*Continued.*

No. of Vote.	SERVICE	To be voted for 1893.	
	DETAILS.—*Continued.*	$ cts.	$ cts.
74	*Blind Institute, Brantford.*		
	Revote of unexpended balance	500 00	
	Furniture and furnishings (Inspector)	530 00	
	Repairs and alterations, hardwood floors, etc	460 00	
	Garden and grounds, for one team, etc	540 00	
			2,030 00
75	*Agricultural College, Guelph.*		
	Revote of unexpended balance	2,100 00	
	Completion of Convocation Hall, green houses, etc	5,000 00	
	Furniture and furnishings	500 00	
	Special apparatus for Chemical Laboratory	500 00	
	Engine, steam pump, sewage tank, etc., Dairy School	1,500 00	
	Materials, labour, etc., completion of Dairy stables	1,000 00	
	do enlargement of Dairy building	2,500 00	
	do houses for foreman, cattleman, etc	2,500 00	
	do for poultry buildings, fencing of yards, etc	2,000 00	
			17,600 00
76	*Education Department, Normal and Model Schools Toronto.*		
	Revote of unexpended balance	1,800 00	
	General repairs, drains, etc	500 00	
	Furniture and furnishings	500 00	
			2,800 00
77	*Normal School, Ottawa.*		
	To complete additions, furniture for Class rooms, etc	3,500 00	
	General repairs, drains, etc	2,000 00	
	Furniture and furnishings	500 00	
			6,000 00
78	*School of Practical Science, Toronto.*		
	General repairs, drains, etc	1,000 00	
	Two new steam boilers and fittings, steam heating	1,800 00	
	Furniture and furnishings	500 00	
	Deafening ceilings for six lecture rooms	400 00	
	New furniture, desks, tables, cases, etc., for rooms	500 00	
	Castings, valves and electric wiring, engineering laboratory	120 00	
	Fitting and appliances for Engineering Laboratory	1,900 00	
	do do Applied Chemistry Laboratory	1,200 00	
	do do Assaying and Metallurgy	3,000 00	
	Surveying and astronomical instruments	800 00	
	Fitting and appliances for electrical laboratory	1,500 00	
	Architecture and sanitary models	1,000 00	
			13,720 00
79	*Osgoode Hall, Toronto.*		
	Revote of unexpended balance	3,000 00	
	Furniture and furnishings	500 00	
			3,500 00

X.—PUBLIC BUILDINGS.—*Concluded.*

No. of Vote.	SERVICE.	To be voted for 1893.	
	DETAILS.—*Continued.*	$ cts.	$ cts.
80	*Government House, Toronto.*		
	Refitting apartments, new furniture and furnishings	5,000 00	5,000 00
81	*Equipment, Furnishing and Fitting up of New Parliament and Departmental Buildings, Laying out of Grounds, etc.*		
	To complete combination electric and gas light fittings	23,611 00	
	Metal fyles, pigeon holes, etc., for vaults	8,300 00	
	To complete electric engines and elevators	14,480 00	
	Venetian blinds for windows	3,500 00	
	Book stacks, tables, reading desks, hat and coat racks, counters, shelving, carpets, matting, linoleum and general furniture, furnishings, fittings, etc., for Post Office, Library, Legislative Chamber, Reading Room, Coat Room, Queen's Printer's and other offices, Speaker's apartments, Committee Rooms, Reception Room, Dining Room, Smoking Room, public corridors, etc	20,000 00	
	Completion of electric light and power wiring, etc	3,000 00	
	Laying out of grounds, completion of roads, pavements, concreting, etc.	15,000 00	87,891 00
82	*Algoma District.*		
	Revote, lock-up, Saint Joseph's Island	600 00	
	Repairs and furniture, lock-ups, etc	400 00	
	Addition to lock-up, Little Current, for residence	1,500 00	2,500 00
83	*Thunder Bay District.*		
	Revote of unexpended balance	500 00	
	Repairs and furniture, lock-ups, etc	400 00	
	Fence around female yards, gaol, Port Arthur	400 00	
	Hot-air furnace for lock-up, Fort William, hose, etc	500 00	1,800 00
84	*Muskoka District.*		
	Revote of unexpended balance	900 00	
	For court-room, lock-up, Baysville (contribution)	300 00	
	Repairs and furniture, lock-ups.	400 00	1,600 00
85	*Parry Sound District.*		
	Revote, lock-up, Byng Inlet	600 00	
	Hot-air furnace for court room, etc., Parry Sound	600 00	
	Repairs and furniture, lock-ups	400 00	1,600 00
86	*Nipissing District.*		
	Revote of unexpended balance	2,400 00	
	For new lock-up at Webwood	1,500 00	
	For fencing at Sudbury, materials (with prison labor)	500 00	
	Woodshed and workshop at North Bay	100 00	4,500 00
87	*Rainy River District.*		
	Revote of unexpended balance	600 00	
	Addition to lock-up, Rat Portage	2,400 00	
	Hot-air furnace for court room, Rat Portage	700 00	
	Fences enclosing yards for prisoners	300 00	
	Repairs and furniture, lock-ups, etc	500 00	4,500 00
88	*Miscellaneous.*		
	Repairs to Brock's monument, Caretaker's house, etc. (revote)	200 00	200 00

XI.—PUBLIC WORKS.

To be voted per Statement (A).....$33,595.00.

No. of Vote.	A.	1893.
		$ cts.
89	Public Works	33,595 00

No.	SERVICE.	Re-vote.	New Vote.
		$ cts.	$ cts.
89	1. *Magnetawan River Improvement :* To dredge Channel below Burk's Falls	2,695 00	
	2. Finishing wharf at Southampton on Saugeen River ; contribution to.	800 00	
	3. *Mississippi River Improvement :* To remove rock obstruction in channel of river in Township of Dalhousie	2,000 00	
	4. To meet one-fourth of the cost of proposed bridge and approaches thereto across the Ottawa River, at the outlet of Lake Temiscamingue, on condition that one-half of such cost is provided for by the Dominion of Canada, and the remainder by the Province of Quebec, and that the Province of Ontario shall not in any event be called upon to pay more than the sum now appropriated, and that the plans for and construction of the bridge are approved of by the Commissioner of Public Works	4,000 00	
	5. *Muskoka River Works :* To dredge Channel at mouth of river	....	4,000 00
	6. *Gull and Burnt River Works :* To re-construct Horse Shoe and Hall's Lake Dams, and construct apron at foot of Racketty Creek Slide	....	6,400 00
	7. Maintenance Locks, Dams and Bridges, etc.....	.....	4,600 00
	8. Surveys, Inspections, Arbitrations and Awards and Charges not otherwise provided for	.....	5,600 00
	9. Superintendent Locks, Dams and Bridges.....	.....	1,200 00
	10. Lockmasters,' Caretakers' and Bridge-tenders' salaries.....	.....	2,900 00
		9,495 00	24,100 00
	SUMMARY.		
	Re-vote included in above	.....	9,495 00
	Expenditure on Capital Account (new)	.....	9,000 00
	" for repairs and Maintenance.....	.....	15,100 00
	Total Estimate for 1893	.. ..	33,595 00
	(Total voted for 1892, $36,978.00.)		

XII.—COLONIZATION ROADS.

To be voted per Statement (A.).....$95,350.00.

No. of Vote.	A.	To be voted for 1893	
		$ cts.	$ cts.
90	North Division	14,600 00	
	West Division	18,400 00	
	East Division	35,350 00	
	General Purposes	27,000 00	
			95,350 00

No. of Vote.	SERVICE.	To be voted for 1893	
90	*North Division.*	$ cts.	$ cts
	Barwick and Dobie Road—to extend from town line between Barwick and Roseberry into Dobie	750 00	
	Batchewaning Road—repairs	750 00	
	Coffin Road—to improve from Ottertail northward, and to make necessary deviations	1,250 00	
	Crozier and Lash Road—to open from corner of sections 3 and 10, Crozier west	1,800 00	
	Grand Portage Road—to continue repairs	500 00	
	Honora Bay Road—to complete	500 00	
	Larchwood Road—to extend southward towards Whitefish Road, to north boundary of Denison, $1,500, and to bridge Vermillion River on same road (estimated cost) $800	2,300 00	
	Patton Road—to extend through Patton	500 00	
	Rainy River Road—repairs	1,000 00	
	Spanish River Road—to open as a winter road between Massey and Webbwood	1,000 00	
	Webbwood Road—to continue repairs towards McGlander's Lake	750 00	
	White River Bridge, on Parkinson Road, in township of Parkinson, to finish	2,500 00	
	Woodyatt Road—from Rainy River Road north to intersect Crozier and Lash roads	1,000 00	
			14,600 00

XII.—COLONIZATION ROADS—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1893	
		$ cts.	$ cts.
90	*West Division.*		
	Bear Lake Road—to continue southward to railway	900 00	
	Bethune Five Side Line Road—to open through concessions 10 to 12, and extend along 12th Concession; also to fix bridge at north end of Bear Lake	500 00	
	Bracebridge Bridge—revote	2,000 00	
	Carling Road—repairs	400 00	
	Chapman and Strong Town Line Road—between Distress River road and Denville Swamp road	600 00	
	Commanda Lake Road—general repairs	1,000 00	
	Denville Swamp Road—to continue	500 00	
	East River Bridge, on Muskoka Road in Chaffey—to renew	900 00	
	Kearney No. 1. Road—to improve to Beaver Lake	500 00	
	Lake Shore and Dane's Road—repairs	500 00	
	Machar 12 and 13 concession Road—to open from lot 4, east, to G. T. Railway	1,000 00	
	Maganetwan Road—to continue repairs from end of previous improvements	600 00	
	Muskoka Road—to produce northward towards Alsace Road *via* 15 side road of Gurd	500 00	
	Muskoka and Bobcaygeon Road—to complete to Dorset, $600, and to repair generally, $1,000	1,600 00	
	Nipissing Road—to repair between Callender and Nipissing	500 00	
	North Cardwell Road—to complete opening between Lots 9 and 16, in cons. 2 and 3, Monteith	500 00	
	Northern Road—repairs between Parry Sound and Dunchurch, $1,250, and to repair between Dunchurch and Glenila, with repairs on Ah-mic Harbour road, $1,000	2,250 00	
	Rainy Lake Road—to open on west side of Rainy Lake, in McMurrich and Ryerson	750 00	
	Rosseau and Nipissing Road—to repair from lot 46 to lot 61, Spence, including the repair of two bridges south of Spence	750 00	
	Ryde Centre Road—repairs	300 00	
	Strong 12th Con. Road—to improve hill and road near lot 27, conditional that the township of Strong supplements grant with $150	350 00	
	Strong and Machar 25 Side Line Road—to open to Eagle Lake road and improve the latter	500 00	
	Westphalia Road—to complete in Gurd	1,000 00	
			18,400 00

XII.—COLONIZATION ROADS—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1893	
90	*East Division.*	$ cts.	$ cts.
	Abinger and Miller Town Line Road—to complete opening	500 00	
	Addington Road—to repair south of Kaladar	500 00	
	Addington Road—extension northward	400 00	
	Alice 20 and 21 Side Line Road—to open through concessions 11 and 12	600 00	
	Alice 8 and 9 Con. Road—to open from lot 10, westward	400 00	
	Anstruther Road—repairs	400 00	
	Barrie Road—repairs east of Addington road	400 00	
	Barry Bay Road—to improve in Alice	400 00	
	Bonfield and Calvin town line Road—to open from railway, southward	500 00	
	Bonfield 25 and 26 side line Road—to open out through concessions 8 to 12, on or near above side road	600 00	
	Booth Road—to continue construction	400 00	
	Bromley and Stafford town line Road—to open from lot 1, con. 1, to con. 5, Stafford	400 00	
	Buckhorn Road—between Buckhorn and Scott's Mills, in Harvey—conditional upon Co. grant of $100 and grant by Harvey $50	200 00	
	Buckhorn Road—to continue north from lot 17, cons. 10 and 11, Cavendish towards Monck road	750 00	
	Burleigh Road—repairs north and south of Apsley	800 00	
	Cavendish Road—repairs in Galway and Cavendish	600 00	
	Calvin and Papineau town line Road—through cons. 3 and 4	300 00	
	Chandos Roads—repairs	400 00	
	Clarendon Branch Road, in Clarendon—repairs	400 00	
	Cruse Road—to repair from Levant road to Trout Lake and Folger road	400 00	
	Ferris Road to continue to North Bay Road	500 00	
	Flinton Road, Kaladar—to repair from Flinton south-westerly	500 00	
	Galway and Cavendish Road	800 00	
	Galway 4 and 5 Con. Road—to construct from Bobcaygeon Road east to lot 19	500 00	
	Golden Lake Road—to repair westward from lot 3, North Algona	500 00	
	Hagarty 5 and 6 Side Line Road—to repair through cons. 6 to 12, $400, and repairs from 4th con. line, $400	800 00	
	Hastings Road—repairs north of Bancroft	1,000 00	
	Hydes Chute and Sanson Road	600 00	

XII.—COLONIZATION ROADS.—*Continued.*

No. of Vote.	SERVICE.	To be voted for 1893.
90	*East Division—Continued.*	$ cts.
	Mattawa and Callender Road- repairs and extension	600 00
	Mattawa 12 and 13 con. Road	400 00
	McKim and Neelon 4 and 5 con. Road—to repair and continue	400 00
	Methuen Road—repairs south of Chandos	500 00
	Mississippi and Hastings Junction Road Bridge, in Dungannon, over York River, on road from L'Amable northward	500 00
	Mississippi Branch Bridge, on Mississippi Road—to renew	500 00
	Monteagle Road—to complete	500 00
	Nogey's Creek Road—to continue to Galway boundary, between cons. 17 and 18, Harvey	300 00
	North Harvey Road—to complete through cons. 5 and 6	700 00
	North Bay and Widdifield Road—repairs	500 00
	North Algona 5 and 6 Side Line Road—to open through cons. 4 to 7 inclusive	500 00
	Nosbonsing Road—to construct in two sections	1,000 00
	Nosbonsing and Thorncliffe Road—to continue	750 00
	Oso and Olden Road—south of Sharbot Lake—to open conditional that each Municipality interested grants $150	300 00
	Opeongo Road—repairs west of D'Acre	600 00
	Ottawa River Road—to complete opening	300 00
	Papineau 12 and 13 con. Road—to open	500 00
	Pembroke and Mattawa Road—to repair in Township Maria	600 00
	Petewawa 6 and 7 con. Road—from lot 10 to lot 15	400 00
	Perrault Settlement Road—to connect with Foy Road and repair the latter	500 00
	Powassan and Callender Road	1,000 00
	Radcliffe and Brudenell Town Line Road—repairs	500 00
	Reid Road, in Galway—conditional upon County grant, $100 and united Townships of Galway and Cavendish, $50	200 00
	Rideau Lake Road—to open on west side of Rideau Lake, conditional upon an equal grant from Municipality	500 00
	Rolph Road—to open from bridge at Des Joachim to C. P. Railway	600 00
	Round Lake Road, in Belmont—conditional upon County grant of $100 and from united Townships of Belmont and Methuen $50	200 00
	Scott Road—repairs	300 00
	Shield's Pit Road—to repair between Ruther Glen and Eau Claire	500 00
	South Caldwell Road—to open from Veuve River Bridge, southward	500 00

XII.—COLONIZATION ROADS.—*Concluded.*

No. of Vote.	SERVICE.	To be voted for 1893.	
		$ c.	$ c.
90	*East Division.—Concluded.*		
	South Buckhorn and South Burleigh Roads—Provided County grants $75 and Township of Smith $75	150 00	
	Sudbury and Blezard Road—to further improve north portion	600 00	
	Sudbury Road—repairs west of Murray Mine	500 00	
	Sudbury and Neelon Road—to continue towards Wahnapitae	1,000 00	
	Sturgeon River Road—to continue	500 00	
	Swamp Road, in Portland—to raise about 1¼ mile in length, conditional that Municipality grants $300	600 00	
	Trafford and Tamworth Road—to continue repairs begun last season	400 00	
	Wahnapitae Road—to improve and extend	1,000 00	
	West Mountain Road—repairs in Brougham	400 00	
	Wilberforce 12 and 13 side Line Road—to complete in 22nd Concession	500 00	
	Wisawasa Road—to open	500 00	
			35,350 00
	General Purposes.		
	New Short Roads and repairs	20,000 00	
	Inspection	6,000 00	
	To pay balances of 1892	1,000 00	
			27,000 00

XIII.—CHARGES ON CROWN LANDS.

To be voted per Statement (A)..... $125,309 00.

No. of Vote.	A.	1892.	1893.
		$ c.	$ c.
91	Expenditure on account of Crown Lands.....	135,209 00	125,309 00

No. of Vote.	SERVICE.		Salaries and Expenses. 1892.	1893.
91	DETAILS.		$ c.	$ c.
	Board of Surveyors		400 00	150 00
	Agents' salaries and disbursements		28,500 00	28,500 00
	Forest ranging, inspection of timber limits		25,000 00	25,000 00
	Fire ranging		27,000 00	18,000 00
	Special timber inspection		3,000 00	3,000 00
	Cullers' Act		500 00	500 00
	Inspection of agencies		150 00	.....
	Fishery service and overseers		1,000 00	1,650 00
	Note.—Half the appropriation for fire ranging and the whole of the amount taken for special timber inspection will be refunded by the licensees.			
	CROWN TIMBER AGENCY, QUEBEC.			
	Agent's salary	$1,400 00		
	Messenger and Caretaker	100 00		
			1,800 00	1,500 00
	Contingencies:			
	Rent	$125 00		
	Sundries	125 00		
			250 00	250 00
	CROWN TIMBER AGENCY, OTTAWA.			
	Agent's salary	$1,200 00		
	Clerk "	900 00		
	Surveyor's fees	300 00		
			3,250 00	2,400 00
	Contingencies:			
	Rent	$400 00		
	Fuel	100 00		
	Travelling expenses	100 00		
	Postage	100 00		
	Sundries	50 00		
	Caretaking, etc	109 00		
			859 00	859 00

XIII.—CHARGES ON CROWN LANDS—*Concluded.*

No. of Vote.	SERVICE.	Salaries and Expenses. 1892.	Salaries and Expenses. **1893.**
91	DETAILS—*Continued.*	$ c.	$ c.
	SURVEYS.		
	Townships in new districts	35,000 00	35,000 00
	Maps	2,000 00	2,000 00
	Survey of limits in Huron and Ottawa territory, chargeable against holders	2,500 00	2,500 00
	MISCELLANEOUS.		
	Refund to holders of timber limits or parts thereof, heretofore sold by the Province and taken by the Government of Canada as part of Whitefish Indian Reserve (estimated). Part re-vote	4,000 00	4,000 00
		135,209 00	125,309 00

XIV.—REFUND ACCOUNT.

To be voted per Statement (A)..... $23,501 15.

No. of Vote.	A.	1892.	**1893.**	Compared with Estimates of 1892. Increase.	Decrease.
		$ c.	$ c.	$ c.	$ c.
92	Education	1,000 00	1,000 00	.....	.....
93	Crown Lands	18,500 00	18,500 00		
94	Municipalities Fund	1,459 92	1,459 92	.....	.....
95	Land Improvement Fund	2,155 89	2,541 23	385 34	.....
		23,115 81	23,501 15	385 34	.....

No. of Vote.	SERVICE.	To be Voted for **1893.**
92	EDUCATION.	$ c.
	To pay withdrawals from Superannuation Fund	1,000 00
93	CROWN LANDS.	
	For payment made to the credit of the Department on account of uncompleted purchases, and afterwards returned to proposed purchasers on purchases not being carried out	7,500 00
	For two per cent. of timber dues payable to municipalities for timber cut on road allowance	6,000 00
	Refund to settlers under the amendment to the Free Grants Act of 1880.	5,000 00
		18,500 00

XIV.—REFUND ACCOUNT—*Concluded.*

No. of Vote.	SERVICE.		To be Voted for 1893.	
			$ c.	$ c.
94	MUNICIPALITIES' FUND.			
	Amount collected in 1892	4,571 52		
	Less 20 per cent. commission	914 30		
	Vide Stat. Can. 18 Vict, c. 2, and 19 Vict. c. 16.	3,657 22		
	To be added to grant to Public and Separate Schools (50 Vict. chap. 5)	2,197 30		
	To pay Widows Pensions for 1893		1,459 92	1,459 92
95	LAND IMPROVEMENT FUND.			
	Moneys collected from sale of Crown Lands, subject to the Land Improvement Fund, for the year ending 31st December, 1892.	1,551 60		
	Less 6 per cent. for cost of collection and management.	93 10		
		1,458 50		
	$\frac{1}{5}$ to the Land Improvement Fund.	291 70		
	Vide Stat. Can. 16 Vict. c. 157, and Con. Stat. Can. c. 26		291 70	
	Moneys collected from the sale of Common School Lands, subject to the Land Improvement Fund, for the year ending 31st. December, 1892	9,374 96		
	Less 6 per cent. for collection and management	562 50		
		8,812 46		
	To be distributed as follows:			
	$\frac{1}{4}$ to Land Improvement Fund	2,203 11		
			2,203 11	
	Moneys collected from the sale of Grammar School Lands, subject to the Land Improvement Fund, for the year ending 31st December, 1892	197 55		
	Less 6 per cent. for collection and management	11 85		
		185 70		
	To be distributed as follows:			
	$\frac{1}{4}$ to Land Improvement Fund	46 42		
			46 42	
				2,541 23
				23,501 15

XV.—MISCELLANEOUS.

To be voted per Statement (A)..... $93,120 00.

No. of Vote.	A.	1892.	1893.
		$ cts.	$ cts.
96	To cover expenses of collection of revenue for law stamps and licenses...	2,000 00	2,000 00
	Industrial School, Mimico	3,500 00	3,500 00
	Marriage licenses	500 00	500 00
	Ontario Rifle Association	1,000 00	1,000 00
	Ontario Artillery Association	500 00	500 00
	Expenses, elections	6,000 00	6,000 00
	Voters' lists	2,700 00	2,700 00
	Gratuities	5,000 00	5,000 00
	Gratuity to Mrs. Notman, widow of John Notman, late Queen's Printer	2,500 00	
	" *D. R. Clark, Taxing Master, Osgoode Hall*	2,000 00	
	" *H. S. Crewe, late Inspector Vital Statistics*	2,000 00	
	" *widow of Robert McCallum, Engineer*	680 00	
	Special grant to George Smith, injured in public service	200 00	
	In aid of archæological researches in Ontario	1,000 00	1,000 00
	Telephone services	1,300 00	1,300 00
	Removal of patients	7,500 00	7,500 00
	Prisoners' Aid Society	1,000 00	1,000 00
	Sanitary Investigations and Health Conferences	500 00	500 00
	Special Inspection of Towns and Villages for prevention of cholera		2,000 00
	Outbreak of Epidemics	1,500 00	1,500 00
	University College, Ladies' Department	500 00	500 00
	Grant to Vaccine Farm	250 00	250 00
	Factories' Act :—		
	Salaries	3,000 00	3,000 00
	Expenses	1,500 00	1,500 00
	To cover expenses of arbitration with Canada and Quebec	10,000 00	10,000 00
	Drainage Commission	3,000 00	3,000 00
	Exhibit for Imperial Institute	1,500 00	2,000 00
	Dominion Teachers' Association	500 00	600 00
	Canadian Military Institute, for printing historical papers	100 00	100 00
	Columbian Exhibition at Chicago in part	15,000 00	20,000 00
	Removal of office furniture, library, etc , to new buildings (revote)	5,000 00	3,580 00
	Fitting up new library	2,000 00	
	Pamphlet on dairying, 20,000 copies (partly furnished in 1892)		2,300 00
	Cost of agricultural examination B. S. A., including arrears for past 5 years (arrears $1,400)		1,640 00
	Game Inspection per Statute	1,200 00	1,200 00
	Travelling and other expenses in connection with fish and game protection	800 00	1,500 00
	Other items voted for 1892, including Supplementaries	77,975 00	
	School of Mining and Agriculture at Kingston :—		
	Mining		5,000 00
	Agriculture		1,000 00
	Contribution towards expenses of Algoma development		1,000 00
	To cover costs of defence of action, Ross *vs.* Bucke		450 00
		163,705 00	94,620 00

XVI.—UNFORESEEN AND UNPROVIDED.

To be voted per Statement (A)..... $50,000 00.

No. of Vote.	A.	1892.	1893.
		$ cts.	$ cts.
97	To meet unforeseen and unprovided expenses	50,000 00	50,000 00

SUPPLEMENTARY ESTIMATES

1893.

96 CIVIL GOVERNMENT.

CROWN LANDS DEPARTMENT—BUREAU OF MINES :		
Advertising	$200 00	
Expenses collecting information for Report on Gold Mining Districts	300 00	
Case for samples of ores and minerals	50 00	
	$550 00	
CROWN LANDS DEPARTMENT, EXPENSES.		
To pay for services in making Parliamentary Returns	1,000 00	
INSPECTION OF PUBLIC INSTITUTIONS :		
Jas. Noxon, for services from 1st October to 31st December, 1892	600 00	
		2,150 00

97 LEGISLATION.

Additional to salary of Assistant Librarian (omission in Estimates)	100 00	
To cover arrears of binding periodicals for library (revote)	2,000 00	
		2,100 00

98 ADMINISTRATION OF JUSTICE.

OSGOODE HALL :		
Omission in appropriation for Local Master of Titles, Port Arthur	100 00	
House-keeper, Queen's Bench Division (omission in Estimates)	50 00	
Omission in salary of Senior Taxing Officer	100 00	
(These two items make salaries same as last year.)		
Caligraph for Common Pleas Division	147 50	
Addition to contingencies for Stenographer for Judges (omitted in Estimates)	200 00	
CHANCERY DIVISION :—		
Second Clerk in Surrogate Office	500 00	
Salary, Clerk of the Peace and District-Attorney, Sault Ste. Marie (omission in estimates)	800 00	
		1,897 50

99 PUBLIC INSTITUTIONS MAINTENANCE.

Toronto Asylum, additional to salary, Assistant Superintendent (omission in estimates)	$100 00	
Institute for the Deaf and Dumb, Belleville, Supervisor of Boys	190 00	
Printing Instructor and Assistant Supervisor of Boys	50 00	
		340 00

(These items are to correct error in estimates, and make their salaries the same as last year.)

100 AGRICULTURE.

Additional grant to Sheep and Swine Breeders' Associations	800 00	
Grant to additional Agricultural Societies, Parry Sound, Nipissing, Manitoulin	2,400 00	
		3,200 00

101 HOSPITALS AND CHARITIES.

The Haven and Prison Gate Home, Toronto; (omission in estimates)	117 00	
County of Oxford House of Refuge	4,000 00	
		4,117 00

102 MAINTENANCE AND REPAIRS OF PUBLIC BUILDINGS.

OLD PARLIAMENT BUILDINGS:		
To meet accounts for services prior to 1893, in respect of fuel, light, furnishings, repairs, snow cleaning, etc	2,600 00	
NEW PARLIAMENT BUILDINGS:		
(*a*) Night Watchmen (two)	1,080 00	
(*b*) To cover accounts for water, light, etc., for 1892	1,550 00	
(*c*) Additional for repairs and renewals of old furniture	2,500 00	
		7,730 00

103 PUBLIC BUILDINGS

NEW PARLIAMENT AND DEPARTMENTAL BUILDINGS:		
(*a*) Revote of unexpended balance of appropriation of 1892 for equipment, furnishing and fitting up of buildings and laying out of grounds, etc	$17,200 00	
(*b*) Patent door checks for interior office doors, etc	1,500 00	
(*c*) Hose, etc., for grounds and for fire purposes	2,000 00	
TORONTO ASYLUM:		
Addition to infirmary on male side	800 00	
Furnishings for infirmary, female side	355 00	
KINGSTON ASYLUM:		
Furnishings for new infirmary	850 00	
REFORMATORY FOR FEMALES:		
Sheeting for ceilings, repairs, etc	500 00	
DEAF AND DUMB INSTITUTE:		
New hot water boiler	200 00	
OSGOODE HALL:		
Reconstruction of drainage, sanitary and ventilation arrangements	5,000 00	
GOVERNMENT HOUSE:		
Equipment, furnishings, fittings, etc	3,000 00	
SCHOOL OF PRACTICAL SCIENCE:		
Part cost of repair and renewal of roadway (remainder of cost to be borne by Toronto University)	200 00	
AGRICULTURAL COLLEGE:		
Additional material and labor for Dairy Building at O.A.C	3,500 00	
MUSKOKA DISTRICT:		
Enlargement of the Office of Registrar and Local Master of Titles at Bracebridge	500 00	
		35,605 00

104 COLONIZATION ROADS.

Basswood Lake Road, to repair in Gladstone, Day and Wells	$500 00	
Bridge repairs, West Algoma, to repair damages by recent floods to Kaministiquia, Point De Meuron and other bridges	2,500 00	
Buck Lake Bridge, south of Devil Lake in Bedford, to renew, estimated cost	400 00	
Clare River Bridge, to complete approaches	200 00	
Cardwell Road, to make necessary deviations	400 00	
Draper and Ryde Town-line Road, to complete	600 00	
Gurd and Himsworth Town line Road, with certain repairs on Westphalia Road	550 00	
Indian Peninsula Roads	2,100 00	
Lavant Branch Road, to connect with Main Road in Darling	600 00	
McDougall and Foley Road, to complete opening	400 00	
Maganetawan Bridge, to build, municipality of Perry to furnish balance to complete. Re-vote	300 00	
Neighic Lake Bridge, to connect main roads in Township of Croft	800 00	
North Methuen Road	400 00	
Oliver Township Roads	600 00	
Ouimet and Black Bay Road, to improve north and south of railway	600 00	
Palmer Rapids and Rockingham Road, repairs in Township of Radcliffe	400 00	
Pigeon River Road, to improve from Point De Meuron and make necessary deviations	1,500 00	
Rabbit Mountain and Whitefish Lake Road	600 00	
Rat Portage Road, three miles north of town	750 00	
Slate River Valley Road, to extend	500 00	
South River Bridge, at Cutchies' Narrows, about lot 12, concession 13, Joly	500 00	
Stephenson Township Roads, to make deviations on Stisted and Brunel Roads, and a spur to connect two leading roads	600 00	
Stone Dam Road, to complete to mills near Verona	200 00	
Sinclair Road repairs in Sinclair Township	600 00	
Sudbury and Whitefish Road, to continue	500 00	
		17,100 00

105 CHARGES ON CROWN LANDS.

Additional on account of fire ranging	$5,000 00

106 MISCELLANEOUS.

Gratuity to Mrs. Harriet Davidson, late attendant at Kingston Asylum	$165 00	
Gratuity to Mrs. John Comerford, wife of late assistant storekeeper at Hamilton Asylum	300 00	
Gratuity to R. Stevenson, stoker and watchman, Institute for the Deaf and Dumb	466 66	
Gratuity to John Nolan, night-watchman, Mercer Reformatory	300 00	
Gratuity to Gilbert Hartley, guard at Central Prison	600 00	
Gratuity to Wm. Moore Kelley (additional)	500 00	
James Forsyth, late gardener at O.A.C., retiring allowance	700 00	
Industrial School	3,000 00	
Mining School, Port Arthur (re-vote)	5,000 00	
Addition to appropriation for enforcement of Game Laws	800 00	
Expenses under Children's Act, including Superintendent's salary, travelling expenses, etc.	1,500 00	
To pay bounty, destruction of wolves	500 00	
To Solicitor, Treasury Department, re services under Succession Duties Act	1,000 00	
To build a slide, dam and piers at the High Falls, near the mouth of the Pigeon River, District of Thunder Bay, in accordance with one of the conditions of the timber sale of 1890	7,500 00	
Algonquin Park, Superintendent, rangers, erection of log houses, purchase of canoes, labor and materials, etc.	3,500 00	
World's Columbian Exposition,—expenses of maintaining Ontario exhibit, etc.	57,000 00	
Towards expenses of Patrick Heffernan, the prosecutor re Bruce shrievalty, same to be accepted in full of all claims	400 00	
		83,231 66
		162,471 16

107 To defray expenses of Legislation, Public Institutions Maintenance, and for salaries of the officers of the Government and Civil Service for the month of January, 1894 $80,000 00

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